







Samuel Osborn







# MEDICAL REPORTS,

ON THE

## EFFECTS OF WATER,

COLD AND WARM,

AS A REMEDY IN

## FEVER AND FEBRILE DISEASES,

Whether applied to the Surface of the Body, or used Internally.

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### VOL. II.

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CONSISTING OF

*The Author's Experience of this Remedy, subsequent to the Second Edition of Volume I. in 1798 ;*

AND OF

Important Communications from others on the same Subject.

TO WHICH ARE ADDED,

### FOUR LETTERS;

One on the Sphere of Febrile Contagion ;

Two on the Establishment of a Lunatic Asylum in Liverpool ;

And One on the Effects of Nitrous Acid in Lues Venerea.

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BY JAMES CURRIE, M.D.F.R.S.

PHYSICIAN IN LIVERPOOL, AND FELLOW OF THE ROYAL COLLEGE  
OF PHYSICIANS, EDINBURGH.

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*Intentiones operationum, quas proposuimus (ut arbitramur) verissimæ sunt, remedia intentionibus fida. \* \* \* Rem ipsam experimentum et comprobavit et promovebit. \* \* \* Opera consilii cujusque prudentioris, sunt effectus admiranda, ordine quoque egregia, modis faciendi tanquam vulgaria.*

BACON. Historia vitæ et mortis.

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Liverpool,

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1804.



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### FEVER AND FEBRILE DISEASES.

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### FOUR LETTERS;

One on the Sphere of Febrile Contagion;

Two on the Febrile Affects of a Febrile System in Liverpool;

And One on the Effects of Nitrous Acid in Febrile Diseases.

BY JAMES GARRIE, M.D. F.R.S.

Physician in Ordinary, and Fellow of the Royal College

of Physicians, London.

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## ADDITIONAL



## ADDITIONAL REPORTS.

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### CHAP XXI.

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*The Author's subsequent experience of the use of the cold and tepid affusion. Use of the Digitalis in inflammatory fevers.*

IN the preceding pages is reprinted my former publication, with several additions, and a few unimportant corrections, suggested by the progress of my experience. Such additional observations as I have to make on the use of water as a remedy in fever and febrile diseases, I have however, reserved for a separate report, to which I shall add a few of the most striking testimonies in favour of this remedy, afforded by the experience of others.

In the five years which have elapsed since the publication of the last edition of this work, I  
have



have invariably employed the affusion of water, cold and tepid, in the diseases pointed out in the original publication, and I have extended it to some others, of which I shall afterwards speak. Its success has equalled my expectations: I have nothing to detract from the accounts I have formerly given of its efficacy. I repeat—that used in the three first days of fever, the cold affusion very generally stops the disease—that the same happy effects sometimes follow its use on the fourth or even fifth day, but seldom later—that even in the subsequent stages, where the heat continues preternaturally great, and the skin dry, it is of great and manifest advantage, almost immediately relieving the most distressing symptoms, particularly restlessness and delirium, and conducting the disease to a safe and speedier issue.

The tepid affusion is, as I formerly observed, applicable to all the diseases to which the cold affusion is applicable, and possesses very considerable, though inferior efficacy. I find it however, very safe, easy of application, and in a high degree grateful, and I have extended it to almost the whole class of febrile diseases. In my practice the cold and tepid affusions are very often combined in the same disease. While the heat is great, the skin dry, and the vascular action strong, I use water perfectly cold; when these symptoms diminish,



diminish, I use it cool ; and as they subside still farther, I make it tepid. The precise meaning of these terms is given in chap. x.

Though, where the fever is evidently of a contagious nature, I employ the cold affusion freely, notwithstanding the presence of pulmonary symptoms, as in the epidemic in the 30th regiment, mentioned in chap. iii., yet in anomalous cases, where these symptoms are not present, I have been cautious in using it. In such cases however, I use the tepid affusion freely, endeavouring to compensate for its weaker and more transient effect, by frequency of repetition. A great part of the febrile affections of children are of this class, and to these little innocents the tepid affusion is a blessed and an invaluable remedy. In fevers accompanied by, or originating in high local inflammation, which are generally attended by a great disposition to chilliness, I do not depend on or recommend the use of affusion, cold or tepid. Neither does my experience enable me to speak decidedly in favour of the use of cold water as a drink in such cases, though this is strongly recommended by Dr. Kinglake. It is a point on which I would not be understood to give an opinion.

It is to be regretted, that where fevers arise  
 singly



singly in private practice, it often happens that before their nature is suspected, and a physician called in, the best season for using the cold affusion is past. In all such cases, however, ablution may be resorted to with advantage, with water either warm, tepid, or cold, as the heat of the patient may direct; and by the method of affusion, or sponging of the surface;\* as his strength may admit; the first being always to be preferred, unless in cases of great debility. By this practice, the patient himself is not only benefited, but the attendants are in a great measure secured against infection, if I may judge from a strict attention to this point, now of several years continuance. It is true, an inquiry into this subject is not without difficulty. The period during which the infection of fever may lie dormant in the system without its being perceived in its effects, is undecided. The observations of Dr. Haygarth on this subject are however of great weight, and indicate that this period extends to eight or ten days, or even more. Admitting then that the ablution of a patient under fever may be a means of safety to the attendants, it cannot prevent infection from manifesting itself that has been received before the ablution was performed;

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\* For the precise meaning of these terms, see p. 73.



formed; and if infection may lie eight or ten days dormant, fevers appearing within that space of time, after the first employment of ablution, ought to be referred to infection previously received. If the truth of these premises may be assumed, my experience testifies strongly in favour of the use of ablution, as a means of preventing the propagation of contagion. I have known a fever to spread after ablution had been repeatedly and effectually performed on the existing cases of the disease, but in every instance, I think, within ten days after this had begun to be practised. To arrive at certainty on this important point, will require numerous observations; but we cannot err in inferring, that among the means of preventing the propagation of contagion, general ablution of persons labouring under the contagious disease, is one of the most effectual.

Though a fever not being suspected may in the first instance be for many days overlooked, yet where its existence is once ascertained, vigilance will be excited, and future instances of its occurrence detected earlier. In such cases it is that the cold affusion appears to the greatest advantage. I might illustrate this by a great variety of examples, but the following shall suffice.

In the month of August, 1799, a warehouse-

C c 2

man



man, in the service of Messrs. Hodson and Carter, was affected with the low contagious fever, of which he died. I did not visit him, and cannot mention the particulars of his case. The disease spread among several of the persons round him, and among others, Mr. Bourne, a clerk in the house, who had been frequently with the warehouse-man, caught the infection. He was attended by Mr. Ellison, by whom my assistance was requested on the 12th or 13th day of the disease. The situation of Mr. B. was at this time deplorable. He was sunk down in bed in the low delirium, insensible to surrounding objects. His pulse was feeble, and frequent almost beyond calculation; petechiæ covered his body; he was affected with diarrhæa, and passed his urine and stools involuntarily. I should have considered his case as desperate, had it not been that his respiration was tolerably free, that his deglutition, though impaired, was still equal to the purposes of nutrition, and that *his heat was steadily and considerably greater than natural.*

As his strength did not admit of his being taken out of bed, the surface of his body was washed by means of towels dipped in cold vinegar and water. An anodyne absorbent mixture was directed to be given from time to time, to stop the diarrhæa and procure sleep. Yeast, to the quantity



tity of a pint daily, was also prescribed, with broth, and gruel mixed with wine, for his food. On the same day his mother arrived from a distance to take charge of her son, a woman of the strongest affections, but regulated by a corresponding strength of mind. She attended him night and day, forthwith, and implicitly followed our directions.

Mr. B. lay on his back, sometimes in a disturbed slumber, and sometimes with his eyes open, muttering to himself, and under the influence of *subfultus tendinum*. His heat, though always greater than natural, varied in degree from time to time, as often occurs on the approach of death, the exacerbations of heat being distinctly marked by a deep flush extending over his face and neck. On every appearance of this symptom, his mother was directed to repeat the ablution of his body with vinegar and water. The ablution was performed from eight to ten times in the twenty four hours, and was always followed by abatement of febrile agitation, and generally by sleep. The other directions were followed strictly. In forty-eight hours a dawn of recollection appeared, and the involuntary discharges ceased. In eight days more his recovery was ascertained.

Mr. Hodson had also very humanely visited  
the

the warehouse-man, and been frequent in his visits to Mr. Bourne. He was seized with fever, but did not at first suspect the nature of his illness, and I was not desired to visit him till the fifth day of the disease. He was immediately subjected to the cold affusion, which was repeated in the evening. This was continued twice a day, the temperature of the water being raised, first to *cool*, and then to *tepid*, as his heat diminished. He took saline draughts in the day, with an anodyne at night, and lived chiefly on milk and gruel. There was an abatement of his symptoms immediately, and in four days nothing remained but debility.

Soon after, Mr. Bouker, also a clerk in the house, who had been exposed in the same manner to the contagion, was taken ill. I saw him in thirty-four hours from the first attack. His heat was  $105^{\circ}$  of Fahr<sup>t</sup>, his pulse strong and 120 in the minute, and severe pains affected his head and back. We threw over his naked body six gallons of water of the temperature of  $60^{\circ}$  of Fahr<sup>t</sup>. in two successive buckets, and replaced him in bed. His pains vanished; his heat and pulse fell to the natural standard; he sunk into a natural sleep, with a breathing moisture over his surface, and awoke in the morning free of every complaint excepting a slight languor. The same symptoms occurred in another case similarly situated,



ated, and were carried off precisely by the same means. Mrs. Bourne herself escaped.\* Her son had been effectually washed before she saw him.

The great debility of Mr. B. prevented us from taking him out of bed for the purpose of using the affusion. When the morbid heat has continued, and the strength has admitted it, I have often, in the last four years, used the cold affusion even later in the disease than the period of it, when I first saw him. In the case of a servant of Mrs. Heywood, daughter of my respected friend Dr. Percival, I used it on the 14th. day of fever, with the immediate removal of delirium, and every other desired effect.

Few accurate observations have been made of the effects produced on persons under fever, by exposure of their naked bodies to a stream of air. The following may therefore deserve to be recorded :

In the month of May, 1801, I was desired to visit a patient ill of fever in Sparling-street. I found

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\* The parties mentioned in this narrative will I hope forgive the use of their names.

found him in the tenth or eleventh day of the disease, delirious and restless; the surface of his body dry, and his heat  $104^{\circ}$  of Fah<sup>t</sup>. The air of the room was close, and I desired the only window in it to be opened. The wind from the north-west blew directly into this window, and the bed being situated between it and the chimney, a pretty brisk stream of air passed over it. The patient had just thrown off a considerable part of his bed-clothes, and was exposed naked to the wind. I sat by him, with my finger on his pulse, watching the effect. In a little while the pulse fell from 120 to 114 in the minute; he became more tranquil, and soon afterwards he sunk into a quiet sleep, in which he remained when the water for affusion was prepared; of course we did not disturb him. When I left him, I desired the attendants to suffer him to remain in this situation all night, unless he became cold; but to take care to administer the proper nourishment.

Once or twice in the night the attendants placed the bed-clothes on him, but he soon became hot and restless, and they took them off again. While naked he slept tranquilly, and had generally a gentle moisture on his skin. In the morning I found him perfectly collected, and considerably refreshed; his pulse about 100, and his heat  $101^{\circ}$ . He coughed, however, a little, and we covered him



him with a sheet, which he now found agreeable to his feelings. The cough produced no serious inconvenience, and in a few days the patient recovered, under the common treatment.

At the time this experiment commenced, the mercury in my thermometer stood at  $65^{\circ}$ , and it did not sink lower than  $63^{\circ}$  during the night. No certain inference can be drawn from the result of a single observation of this kind, but it is not to be doubted, that by a due attention to the heat of the patient, and his sensations of heat, such observations might be safely multiplied, and certain principles at length established respecting the use of cold air as a remedy in fever. In the warmer regions of the earth, where the heat in febrile diseases is probably greater than in our island, and the temperature of the atmosphere higher, a still more free admission of the wind to the naked body may often be useful. The benefit which Dr. Jackson and others have ascribed to gestation or travelling, in certain instances, in the fevers of St. Domingo and America, is probably to be attributed in part, to the mode of conveyance in open vehicles, in which the sick were probably little fatigued by the motion, and were invigorated and cooled by a constant change of air, by showers of rain, and by heavy dews in the

the night \*. In the fevers of this country, I have uniformly found fatigue to be injurious, and those who have struggled with them in the early stages, to have a less favourable chance in the issue. It has also happened to me to see, in every instance in which I have had an opportunity of observation, unfavourable effects in fever, from the usual mode of travelling in a post-chaise or close carriage, of some of which I shall presently have occasion to speak. To the invigorating effect of the wind, and the coolness, and refreshment of the dews and the rain, I am also disposed to ascribe the singular recovery, from the worst species of plague, mentioned by Desgenettes, in his *Histoire Médicale de l'Armée d'Orient*, p. 249. “A miner,” says he, “attacked by the plague, during the expedition into Syria, escaped naked, during a violent delirium, from the fort of Ca-thieth, and wandered nearly three weeks in the desert. Two buboes which he had upon him at the time, suppurated and healed of themselves. He

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\* These circumstances combined in the decisive examples given by Dr. Jackson, of the benefit of gestation. *Remarks on the Constitution of the Medical Department of the British Army*, p. 296 and 297. I quote Dr. Jackson's narrative of facts with confidence. His inferences, general speculations, and practical maxims, are so much at variance with mine, that I have thought it a hopeless task to attempt to reconcile them.



“ He ate when hungry, a small species of sorrel,  
 “ formerly described.” This man perfectly recovered. I have supposed him to have been cooled by the rains as well as dews; for it appears, that during the period of his wandering, the French troops met with heavy rains in the progress of their march, of which in all probability he felt the influence. Having quoted the work of M. Desgenettes, I cannot forbear to extract the other remarkable recovery, from the worst species of the plague, which he details. “ An artillery-  
 “ man, who had two buboes and an anthrax,  
 “ (charbon) made his escape from the Lazaretto of  
 “ of Boulak, on the day of his being admitted, and  
 “ in a violent delirium precipitated himself into  
 “ the Nile. He was taken up about half an hour af-  
 “ terwards, below Embabeth, by the people of that  
 “ village, and he afterwards perfectly recovered.” These extraordinary cures which M. Desgenettes attributes entirely to nature, correspond perfectly with a number of striking facts of the same kind, all pointing out the powerful instinct by which, in the delirium of the plague, as in other burning fevers, the patient is impelled to seek the most easy and obvious modes of relief.

To give these narratives every advantage, they should have contained a statement of the temperature of the atmosphere, of the waters of the Nile,

Nile, and of the patients exposed to their influence. But the advantages derivable from such observations were unknown in the French army; and what is more a subject of regret and surprise, they seem to have been equally unknown in the English army, as far as the records of the medical practice of our countrymen in Egypt, have come to my knowledge.

How fruitless and how perverted are the efforts by which learning and science have in general attempted to combat this fatal disease! The medical departments of both armies seem to have been arranged with the greatest care, but the best remedies for the plague were probably missed by the physicians both of France and England. They were not to be traced in the prevailing systems of medicine, or in the pharmacy of our shops; but it is probable they might have been found, in the refreshment of the breeze, in the dews of night, and in the waters of the Nile.

Having given this general account of the success of the practice recommended in this volume since the last edition, I come now to offer a few observations on certain cases in which its good effects were less apparent. It will be necessary to introduce these with a short narrative.

That



That the year 1801 was particularly unhealthy in Liverpool, has been already mentioned. Three different epidemics prevailed among the inhabitants in the course of that year. The first was the dysentery. This disease made its appearance in the month of July, though it had been prevalent among the French prisoners the preceding winter. It resembled very much the dysentery of the West Indies, as described by Dr. Wright and other respectable authors. Generally speaking it came on with symptoms of diarrhœa. The stools, though frequent and griping, at first consisted of the natural contents of the bowels ; but soon became scarce, slimy, and bloody, with increased and almost intolerable griping, fever, thirst, and prostration of strength. In the latter stages, came on sickness of stomach, vomiting, excessive debility, coldness of the surface, and especially of the extremities, delirium, and death.

In Liverpool, as in the other great towns of the kingdom, it is very common for bowel complaints to prevail in the latter end of summer and beginning of autumn ; but generally speaking, they are mild in their nature, and easy in their management. In the preceding year these had in some instances assumed dysenteric symptoms, but in no case that I saw or heard of with fatal results. The medical practitioners expected at  
first

first the usual autumnal complaints, and at any rate nothing worse than had occurred in the year preceding, when suddenly they found themselves engaged with a wide-spreading and violent epidemic, of great malignity, requiring the most painful attention, and often terminating fatally, in spite of every exertion.

The distress occasioned by the dysentery was speedily aggravated by the appearance of the *Scarlatina Anginosa*, (seldom, indeed, long absent from among us) which spread widely in the month of August, and speedily became general. Soon afterwards the typhus, which is always to be found in the subterraneous dwellings of the poor, burst its accustomed boundaries and extended into the habitations of the opulent, occasioning general alarm. In the months of August, September, October, and the greater part of November, 1801, the degree of sickness in Liverpool, was unexampled in the history of the town. The pressure on the Dispensary was so great as to render it impossible to keep records of the practice, or even of the names of the patients; and the greater part of the private practitioners had little or no remission from anxiety and fatigue. The mortality was considerable. In the months of August, September, and October, there were upwards of fifteen hundred deaths in Liverpool, making an  
excess



excess of nine hundred above the usual number. In September alone, the deaths amounted to six hundred and ten !

The far greater part of these was produced by the dysentery and scarlet fever. The treatment of the first of these diseases was difficult. On the whole, where the patient was in the first stages, and his strength not much reduced, nor his stomach unsettled, it was a successful practice to clear the first passages, and open the pores of the skin, by Ipecacuanha, or James's Powder, afterwards keeping the bowels regular by small doses of calomel, and allaying the irritation by opium. In other cases saline purgatives, followed by anodyne clysters, proved successful. Castor oil could seldom be retained on the stomach. Calomel was more generally useful, and in some instances it was combined with chrystals of tartar, with great apparent advantage. In other cases calcined magnesia, in small doses, (sometimes combined with opium and ipecacuanha, or with opium alone) and followed by successive draughts of lemonade, answered every purpose. In a few cases I made a trial of the remedy of my friend, Dr. Wright—sea-salt, dissolved in vinegar or in lemon-juice. Used in the early stages of the disease, this remedy seemed to answer the character he has given of it ; but in the latter stages it failed, as indeed the communication I had from  
him

him led me to expect. I regret that I did not employ it more generally.

These and other methods, varied according to circumstances, and pursued with the utmost determination, though generally successful, in several instances failed. Out of a hundred and ten cases of the disease, which I saw in private practice, all of them in a situation to procure the necessary assistance and attendance, ten died. These were chiefly persons advanced in life, or of infirm constitutions; but two were young and vigorous, and seemed to have every chance in their favour. In this disease, the heat, after the appearance of the dysenteric symptoms, rose to  $102^{\circ}$  and  $103^{\circ}$ , the tongue became furred, the skin dry, and the pulse from 100 to 120 in the minute. In the progress of the disease, the heat sunk below the natural standard, as has already been mentioned, and the pulse became feeble and less frequent. I did not try the cold affusion or the application of cold in any form, having learnt by experience that it does not succeed in fever with affections of the bowels. I tried, however, the tepid affusion in a few cases, and though with abatement of heat, with no lasting benefit. The patients complained of the fatigue and pain of moving, and of the chilling effects of the remedy, which was therefore abandoned.

In



In the *Scarlatina* I used the affusion, both cold and tepid, with the happiest effects, as shall be more particularly mentioned immediately.

I also used the affusion universally in the typhus fever of that season, but with less striking advantage than on former occasions.

The typhus at that time differed somewhat from its usual character among us. It came on in a less obvious manner. For some days the patients felt dull headache, languor, and debility, with slight chills at intervals, and uneasy nights. The tongue was lightly furred. In many instances the disease was mistaken for a common catarrhal affection, and its real nature not discovered till the extraordinary progress of debility excited uneasiness and alarm. In its regular course, the disease was protracted beyond the usual period of typhus, extending to eighteen or twenty days, or even more, and sometimes leaving behind it, for a week or two, a state of mind bordering on fatuity. The skin was at no period after the first or second day, particularly dry or constricted; and in twenty-three cases, which I attended closely, and examined with care, I did not find in a single one, the heat exceed  $102^{\circ}$ . at any period of the disease. In general the heat was from  $98^{\circ}$ . to  $101^{\circ}$ . and greatest about the

fifth or sixth day. Of the twenty-three patients which I have mentioned, I lost two. Both of these had undergone extraordinary fatigue. The one, a lady of thirty years of age, had been for some days ill in Wales, (where she was on a visit) before the nature of her complaint was discovered. When it was made known to her, she insisted on returning to Liverpool; actually set off in a post chaise immediately; and performed a journey of thirty-eight miles, six of which were by water, in a single day. She arrived oppressed with fatigue, and almost lost in stupor. Her heat did not justify the cold affusion, but the tepid affusion was employed with obvious though transient relief; and in spite of every support from wine, bark, and nutrition, she sunk under the disease, on the thirteenth day. The other case was that of a young man, in his seventeenth year, of the most steady character, and the most amiable disposition of mind. Being entrusted with business of consequence, he concealed his indisposition in the first days of the fever, and continued to perform duties of considerable fatigue and exertion, in the course of which he was repeatedly affected with sickness and faintings. When I saw him first, he was scarcely able to walk across the floor, it being the fifth day of his fever, though only the second of his confinement. The affusion, at first cool, and afterwards  
 tepid,



tepid, afforded momentary relief, but made no serious impression on the disease. We had recourse to wine, bark, æther, and musk, and endeavoured to sustain his strength by the most nourishing diet, but he sunk into insensibility, and expired on the seventeenth day of the fever.

In the treatment of the other twenty-one cases, there was little difficulty. The affusion, seldom lower than cool, but generally tepid, was employed in all of them, sometimes once, and more frequently twice a day. It was always followed by refreshment, and immediate relief, but had less effect in cutting short the disease than usual. I did not even succeed in stopping it, in cases in which this remedy was applied on the second or third day ; but this might be owing to my seldom having recourse to the perfectly cold affusion, from the unusual deficiency of heat in this epidemic. Perhaps a practice somewhat bolder might have been more successful.

During the prevalence of the influenza last spring, a few cases in my practice assumed the form of typhus, all of which recovered easily, with one exception. This was the case of a young married lady, whose loss, I, in common with all who knew her, deeply lament. Residing at some distance from Liverpool, she had

there been seized with the influenza in its usual form, and had been nearly confined to bed for three days, when she received an account of the dangerous illness of a near relation in Liverpool, to whom she had from early infancy been strongly attached. No consideration could prevent her from setting off to see this relation immediately. She rose out of bed, threw herself into a post-chaise, and performed a journey of thirty-eight miles without stopping. She arrived a few hours only before her relation expired, and these hours she spent by the bed of the dying person. The sensibility of her natural constitution had been heightened by the influenza, and excited to an extraordinary degree by the circumstances of this melancholy scene. She kept her feelings however under command, but sleep deserted her, and when at last it returned it was accompanied by stupor, and interrupted by uneasy sensations and frightful dreams. For several days however, the pulse was very little more frequent than natural, the skin was soft, and the morbid heat inconsiderable. She was affected with the symptoms of influenza, in rather a severe degree, and with great agitation of spirits, but there was no appearance of pressing danger. The tepid affusion had a soothing influence, but was not as usual effectual in producing tranquillity and sleep; and the cold affusion was not employed. In this

state.



state we ventured to remove her from the scene which served to remind her of the subject of her grief, to a house about a mile distant ; she bore the journey well, and expressed satisfaction in the change. But on the afternoon of that day the symptoms suddenly assumed a serious form. The pulse became rapid, the breathing oppressed, the nervous startings alarming, and delirium impended. That most fatal symptom, a morbid sensibility of the surface and of all the organs of sense, augmented rapidly, and delirium supervened. She lived however four days, and in the last twenty-four hours of her life, her consciousness and recollection returned. She foresaw her fate ; prepared for it with the most perfect resignation ; and on the morning of the 14th day from the first attack of the influenza, breathed her last. The tepid affusion was used in this case a few times only, before the disease assumed the typhus form. The debility, agitation, and diminished heat, did not allow me to propose it afterwards. The usual medicines were prescribed, and the usual means of supporting strength were employed—in vain !

In the latter end of last July, a fever occurred in the case of a gentleman of great worth and respectability, a good deal resembling the above, but still more nearly resembling the fever described in Chap. VIII. This patient, previous to the attack, had

had been much affected in his spirits. His stomach had for a considerable time been disordered, and he had been afflicted with severe and almost constant headaches. He was in an enfeebled state when the fever came on. The symptoms were very exactly those described in p. 46, 47, and 48; excepting that the heat of the patient never rose so high, not having at any time exceeded  $102^{\circ}$ , and continuing at this height for a short time only. But there was that morbid sensibility all over the surface, and in the senses of hearing, sight, and taste, which I have already pointed out as a symptom of so fatal a nature. Delirium came on the tenth day; at first it occurred at particular moments only, but afterwards it became constant. The patient in this case survived till the eighteenth day. The tepid affusion was used often in the early stages, and generally with immediate, but transient relief. The symptoms did not seem to justify the use of the cold affusion, and it was not resorted to. Wine, opium, bark, musk, æther, and sinapisms, were employed to keep up his strength, but with no apparent advantage. Petechiæ and vibices covered the surface in the latter stages of the disease. After death, a great discharge of blood took place from the nostrils, and the body went rapidly into putrefaction.

I have thus related all the instances which  
have



have occurred to me since the last edition of this volume, (a period of five years of extensive and attentive observation) in which the affusion of water on the surface of the body, cold or tepid, timeously employed, proved either less beneficial in its effects in fever than I had formerly represented it, or entirely unsuccessful. I would add, if any such had occurred, the instances in which this remedy had appeared to be injurious. But experience has suggested to me no instance of this kind, and extensive as my employment of the affusion has been, I have never heard that it has suggested even to the fears or prejudices of others, a single occasion of imputing injury to the remedy. If I were to detail in the same manner the evidence in its favour, which has occurred to me during the same period of time, it would occupy many volumes. In the present and the preceding months only, (September and October, 1803,) twenty cases of fever have occurred in my private practice, in all of which, the affusion of water has been employed with success, having either cut short the disease, or conducted the patient in safety through it.\* It is true in all these cases, other remedies

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\* Of these cases, seven were arrested in their course, the rest passed safely through the disease. In only two families out of thirteen, did the fever spread after the use of the affusion, and in both instances within ten days of the affusion being first employed.

remedies were used, for it would be unjustifiable for the sake of experiment to neglect any means of safety ; yet these remedies were of the most simple kind,—saline draughts, small doses of laudanum, and mineral-acid drinks, with milk, gruel, and occasionally wine. In the use of all these remedies, and particularly of opium and wine, the strictest attention was paid to the heat of the patients, without which he who undertakes the treatment of fever seems to me to *walk in darkness*.

Hitherto I have rigidly adhered to the rule of not using the affusion of water excepting where the heat is greater than natural ; and to this I ascribe the general success and the uniform safety that has attended the use of this powerful remedy.

The second rule which I laid down, of not employing the cold affusion, even in cases where the heat is preternaturally great, if the patient has a sense of coldness upon him, I have also adhered to in the few cases of this kind which have occurred to me. In these cases, as in hydrophobia, there is not merely an extraordinary sensibility of the surface to cold, but to every other impression, accompanied by a corresponding sensibility in the senses of hearing, sight, and taste. Such cases have very generally been attended by spasmodic affections of the voluntary muscles,



muscles, restlessness, and delirium, and have uniformly terminated fatally; opium, bark, camphor, wine, æther, and musk, proving wholly useless, if not injurious. The case mentioned in chap. viii. and some other circumstances, led me to believe that the cold affusion would prove equally inefficacious, and to lay it down as a rule, that it ought not to be employed, even though the heat should indicate its use, if this sensibility of the surface to impressions of cold were present. I confess that my experience was not sufficiently ample to justify me in laying this down absolutely, and in a species of fever so generally fatal under all the old methods of treatment, it may be thought right that this new and powerful remedy should have a more ample trial before it be set aside. This reasoning will be supported by the following important and very clearly detailed case, furnished me by Mr. Dalrymple of Norwich, which I shall give at length in his own words, omitting only the very obliging expressions with which the narrative was introduced. Certain parts of it I have marked in italicks.

“ On the 31st of January, 1802, after a few days of slight indisposition, James Money, aged 16 years, of a healthy habit of body and serious turn of mind, was seized with a long continued and very violent shivering fit, which was quickly  
succeeded

ceeded by a greatly encreased state of his temperature. He complained grievously when I first saw him of intense lancinating pains in the head; of sickness and oppression at the pit of the stomach; of great uneasiness in the region of the loins, accompanied by extreme prostration of strength, and a distressing sense of foreboding over the whole surface of his body. His tongue was covered with a thin cream-coloured crust; his pulse was small and quick; his heat was now natural; his eyes were dull and suffused, and an air of deep despondency overspread and saddened his whole countenance.

“ Some days previous to the appearance of these symptoms he had been exposed to the contagion of typhus fever, by occasional attendance of the sick bed of his father, and had suffered considerable agitation and distress of mind in consequence of a severe domestic misfortune. His elder brother who had been more uniformly about the person of his parent, was seized, nearly at the same time, with milder symptoms of a similar kind; and although he obstinately declined all medical assistance, passed safely through a mitigated typhus of the ordinary form. James, however, at the desire of his master, became my patient, and was ordered to take an emetic dose of tartarized antimony immediately, and in  
the



the evening, when he should have been sometime in bed, a gentle anodyne draught. I visited him on the following morning and found him in a very restless and perturbed state. The emetic had operated moderately, and somewhat relieved the oppression at the præcordia, but he had passed a sleepless, unquiet night. He complained heavily of his head and loins ; his respiration was embarrassed and frequent ; his tongue dry and brown ; thirst great ; urine high coloured and scarce ; pulse 102, and small ; his heat was still moderate and natural, but the tenderness of his surface was become so great, that on passing my hand under the bed clothes, in order to ascertain the state of his pulse, he screamed dismally, from a dread of the pain he expected to suffer from my touch.

“ In this state he continued, with very little variation of feelings and appearances until the evening of the 5th of February ; during which interval he had been ordered to take frequently small doses of the compound powder of ipecacuanha, alternated with doses of decoction of the yellow bark, and sulphuric acid ; beer, wine, and opium had also been given in moderate quantities, and a blistering plaster had been applied, with some little advantage, to the nape of the neck.

“ On the morning of the 6th of February, I  
per-

perceived in him a material alteration for the worse; his animal heat, which had hitherto continued uniformly moderate, was then greatly encreased, the quick-silver of Fahrenheit's thermometer applied at the axilla, rising to 104 degrees. His sense of hearing was become wonderfully acute, insomuch that he was considerably incommoded by noises which were either obscurely, or not at all perceived by others: his sight was also greatly quickened. He was fretful and refractory; talked sometimes calmly, at other times very wildly; was extremely restless in his bed, answered, sometimes prematurely, constantly with eagerness, to such questions concerning him as were asked of the nurse. He fluctuated greatly in his spirits in the course of a few minutes, being now elated with joy, at his self-assurances of recovery, now depressed with despair, from conviction that he should die. In addition to the other means that had hitherto been used, attention was now directed to be given to the state of his heat, and his body was ordered to be sponged frequently with a mixture of cold vinegar and water: but this process he greatly disliked and constantly opposed; *for, although he was much distressed by a sense of burning heat, he was so apprehensive of the effects of cold air upon his skin, that he was constantly collecting the bed clothes together,*



*together, and wrapping them close around him.* Cold acidulous drinks, however, he eagerly called for and largely drank. At eight o'clock of the same evening I repeated my visit to him, and entering his room I found him sitting up in his bed talking and singing loudly and deliriously. He answered rationally however to some questions that were put to him; complained heavily of his head, and of the action of the lighted candle upon his eyes. *His pulse was 120; his heat encreased to 108°. his skin felt parched and dry;* the crust on his tongue was of a dark brown hue; and from the commencement of his illness, on the morning of the 31st of January, to the evening of the 6th of February, his nights and his days had been equally sleepless. Under these circumstances I determined to make a trial of the cold affusion, a remedy I considered as still in reserve, and which I had hitherto been deterred from employing by the moderate state of his animal heat. As soon, therefore, as the necessary conveniencies were prepared, he was taken out of his bed, conveyed into an adjoining room, and before he was aware of what was intended against him, a pailful of cold water was hastily poured over his naked body.

“ The shock was unexpected and severe. He  
started

started from his seat as the water was falling upon him, and endeavoured to make his escape, but being restrained, he wrung his hands, wept bitterly, and earnestly entreated he might be permitted to return to his room. Wrapped in a warmed blanket he was conveyed back to his bed. *In a few minutes afterwards his pulse was examined, and found to beat 100 strokes in a minute; his heat, which an accident prevented me from accurately measuring, was most sensibly diminished; his mind became calm and clear; he expressed a feeling of regret for the trouble he occasioned to those about him; drank a glass of warm wine and water, and in about half an hour he sunk into a deep sleep in which he continued nearly eight hours.*

“ When I saw him the following morning, his skin was moist and cool; his pulse 96 and firm; his thirst gone; the pains in his head and loins removed; his countenance was cheerful; his intellect collected and composed, and he appeared only like one suffering from extreme debility. But in the course of the day, his heat again increased; in the evening his pulse was quickened to 108 strokes within the minute; his tongue was dry and thirsty; he became restless and anxious, and complained considerably of his head and loins. His body  
was,



was, therefore, ordered to be sponged copiously and frequently with a mixture of cold vinegar and water, and although he once expressed very violent dislike to that remedy, he now submitted himself to its application without reluctance, and derived from it effects at once agreeable and useful. He slept soundly and perspired gently during the ensuing night; awoke in the morning, refreshed and free from fever; the dark brown crust had left the edges, and was quitting the middle of his tongue; his pulse beat 90 strokes, and firmly; the pains in his head and loins were removed; he ate his food with appetite and relish, and with a few slight checks and interruptions, eventually recovered his ordinary state of health."

In a letter from Mr. Dalrymple, dated 1st February, 1803, he expresses himself as follows.

"I was originally induced to trouble you with the paper, (that which is printed above) because I conceived that the very striking proof which it contains of the powerful influence of *cold affusion*, upon a disease marked by circumstances so unusual and so alarming, could not fail to be welcomed by the author of the *Medical Reports*."

"Within

“ Within the space of six years immediately preceding the period when it occurred, I had seen two instances of fever, in which the concomitant symptoms were nearly similar to those that appeared in James Money’s case. In each of them, the excitability of certain of the organs of sense was greatly encreased; and in each, that singular libration, the alternate elevation and depression of mind, which is certainly one of the most curious and may, probably, be a necessary quality in the character of this modification of fever, existed in a more or less obvious degree. In both instances the patients were healthy, robust young men, of dispositions somewhat grave, and inclined to melancholy; and like Money, they had, previously to the commencement of their illness, suffered considerably from mental anxiety and bodily fatigue. Their disease was also distinctly traceable to contagion. It was treated as a typhus; that is to say, an emetic was prescribed in the first instance, and in the subsequent periods, wine, and bark, with the sulphuric acid and opium; and blistering plasters were prescribed, according to the state of the living powers at the time. In both cases, the event was unfortunate, and therefore in Money’s case, I was led to form and to pronounce unfavourable prognostics. The general powers of cold affusion were not indeed  
unknown



unknown to me, for I had previously employed it with uniform success, in several instances of common typhus; and in the summer of the year 1801, when Scarlatina was ravaging every quarter of this city, I had seen great advantage derived from its early application, in a few instances of that formidable malady. But as it was impossible for me not to trace, in the symptoms of my third patient, a very close resemblance to those described in the 8th chapter of your book, I confess I had little or no reliance on its efficacy. I considered the use of it, therefore, in the light of a mere experiment, rendered justifiable by the probable failure of all other remedies, and by the safety with which, I knew from experience, it might be made.

“ The result was eminently successful, and I considered the communication of the fact to you as an act of simple justice, due to a writer, whose works, on a very difficult and important subject of medical enquiry, I had read with great pleasure and advantage.

“ My subsequent experience has furnished me with no case that can authorize a particular detail. The only diseases in which I have at present advised cold affusion are Scarlatina and the common putrid fever : but the result of my trials

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of it has been such as will certainly cause me to enforce its exhibition whenever opportunities present: my practice, however, does not carry me extensively among that class of society which is most exposed to the influence of typhus contagion."

I very earnestly hope, that future experience may establish the safety of using the cold affusion, in situations similar to that described by Mr. Dalrymple; and that one of the restrictions which I was induced to lay down on the use of this remedy, may be modified or entirely removed. It will still remain doubtful, whether cold, or even tepid affusion, can be applied with advantage, where fever is accompanied by dysentery, or inordinate discharges of the bowels of any kind; or whether it can be applied with safety, where it is attended by local inflammation. But the establishment of Mr. Dalrymple's practice would make it unnecessary to attend to the sensations of the patient; and the rules for the use of this remedy would be rendered more simple and precise.

I have been the less anxious to extend the use of the cold affusion to the Phlegmasiæ and Hæmorrhagiæ, because a remedy has lately presented itself, that greatly enlarges our power over the numerous diseases which are arranged under these orders :



orders: I mean the *Digitalis Purpurea*. This medicine may almost be said to be possessed of a charm for allaying inordinate action of the heart and arteries, and in this point of view, as well as for its efficacy in some kinds of dropsy—particularly hydrothorax, its introduction into medicine is one of the greatest benefits our science has received in modern times. The extraordinary power of the *Digitalis* in the *Hæmorrhagiæ*, and particularly in *Hæmoptysis*, is pretty generally known, and if it were necessary I could confirm it by some striking examples: \* its use in the *Phlegmasiæ*,

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\* I lament that in confirmed phthisis pulmonalis, the hopes entertained of it have not been confirmed, though it is of essential benefit in the predisponent state, and even in the incipient stages of the disease. In families, where this fatal disease is hereditary, the use of this remedy, as a prophylactic, will, I have no doubt, save many a life that would otherwise have been cut short.

Dr. Rush, and some other of the physicians of Philadelphia, have lately revived the practice of employing mercury in confirmed Phthisis Pulmonalis. This practice had entirely failed in the hands of my predecessor, Dr. Dobson, and in those of Dr. Duncan and the late Dr. C. Webster, and I should not have had recourse to it anew, had it not occurred to me that it was reasonable to try it in combination with the *Digitalis*, though each might have separately failed. Accordingly, about twenty months ago, I put five cases of confirmed

masiæ, is, so far as I know, in a great measure new. Digitalis does not, indeed, supersede the use of the lancet in these diseases, but it diminishes the extent to which it is required; and it may be used with safety and success, in cases where the lancet can no longer be employed. Under the precautions pointed out by Dr. Withering, without the strictest attention to which no practitioner should prescribe this singular and powerful medicine, I have employed the Digitalis to a very considerable extent in inflammations of the brain, of the heart, and of the lungs; and have succeeded with it in situations where I should otherwise have despaired. I have also

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firmed Phthisis Pulmonalis on a course of mercury, within a short space of time, having first bridled the circulation in each, by means of the Digitalis. I pushed the mercury so far as to affect the mouth in all these cases. They all, however, terminated fatally, though I really think they were all prolonged. In one of them, the effects appeared so considerable, that at one time I was led to entertain a slight degree of hope. The brother of this last patient was threatened with the same disease, and put on the same course the beginning of last winter, with some appearance of advantage. Being, however, in the greatest apprehension of the effects of the winter, I advised a voyage to Lisbon, which he undertook the beginning of the present year, and returned in the beginning of summer, free of complaint. In a disease so fatal under all the established modes of treatment, this practice deserves, I think, a farther trial.

found



found it an excellent remedy in inflammatory rheumatism, one of the most tedious and intractable of diseases. At some future opportunity I may, perhaps, offer my more mature experience on this subject to the public. In the mean time I congratulate our profession on having obtained a direct *sedative*; a term, which after the example of Dr. Ferriar, I apply with confidence to the *Digitalis*, in spite of the recent systems which proscribe the word; systems, which if they were otherwise stable, the extraordinary, and in some respects opposite powers of this potent medicine would confound and overthrow. The prognostic which Dr. Ferriar gave to the world in 1799,\* respecting the use of the *Digitalis* in inflammatory fevers, and which my experience has confirmed, I have the pleasure to learn by a recent communication from himself, has been amply justified by his own subsequent experience.

CHAP.

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\* Essay on the medical properties of *Digitalis purpurea* by J. Ferriar, M. D. Manchester, 1799.

## CHAP. XXII.

*The Subject continued—Application of the cold and tepid affusion to Scarlatina—to confluent Small-pox—to Measles—to Influenza—General Remarks.*

THOUGH I have hitherto abstained from the use of the cold affusion in the Phlegmasiæ in general, considering the presence of topical inflammation as in some measure precluding its use, yet I regard the subject as inviting enquiry in the case of Erysipelatous affections.

In several of the Exanthemata it may be employed with striking advantage. No one will doubt that it is applicable to the eruptive fever of the small-pox, a disease happily becoming rare among us; but it is not equally known, that it may be used with the most singular benefit in the eruptive fever of Scarlatina, whose ravages are becoming every day more extensive and more familiar all over Europe, and for which no Jenner has yet arisen to propose a sovereign antidote.

In



In chap. ix. p. 63, 64, 65, and 66, some account is given of the first trials of the cold affusion in Scarlatina. I now proceed to give the farther results of the application of affusion both cold and tepid in that disease. I shall premise a few general remarks on its history and character.

Some traces of the existence of Scarlatina may be found in the writings of very remote times, but the very different symptoms which it assumed in different epidemics, made its history for a long time imperfect and obscure. When Dr. Fothergill improved the treatment of this disease in the year 1748, its nature was very much unknown. Dr. Cullen, who, as he himself informs us, saw the Scarlatina five or six times epidemic in Scotland, has described it under two distinct names, Scarlatina, and Cynanche Maligna, considering these different species to be distinct diseases. Dr. Withering, in the first edition of his work on scarlet fever and ulcerated sore throat, published in 1778, adopted this division, which in his edition of 1793, he has abandoned; and physicians are now pretty generally agreed, that both proceed from the same contagion, and are therefore different degrees of the same disease. The varieties of the Scarlatina, are in fact, not greater than the varieties of the small-pox, to which they bear a very strict analogy.

Another

Another question has arisen among physicians, of considerable importance—whether Scarlatina, like the small-pox and measles, occurs to the same person once only, or whether like the plague and other contagious fevers, it may return indefinitely. Having been taught the last opinion, I adhered to it for many years, as on the whole the safest ; but never having seen a single fact in confirmation of it, though I have known the Scarlatina to appear in many instances for the second and third time in the same family, I now consider the same individual to be liable to Scarlatina once only. I have indeed heard of one or two instances to the contrary ; and Dr. Heberden is of opinion, that such have occurred ; but it must be admitted on all hands that they are rare, so rare indeed, as scarcely to require to be taken into account in our practice.

It is true, persons attending on patients under Scarlatina, are sometimes affected with sore throat, who have themselves formerly gone through the disease. But this is not attended by the scarlet efflorescence, or the general affection of the system by which the regular disease is ushered in. The affection of the throat is primary and topical, though I have known it so painful as to bring the system at large into sympathy. It seems to be produced by inhaling the breath of the patient,



patient, and is probably analagous to those partial eruptions of small-pox which sometimes appear in mothers or nurfes who have had that difeafe, from the contact of infants who are under it.

That the experience on which I give thefe opinions may be juftly eftimated, I may mention, that for the laft twenty years the Scarlatina has never been a whole year together abfent from Liverpool, and that befides the fingle cafes which are often occurring, there is fcarcely a year that paffes in fome part of which it is not more or lefs epidemic. The following obfervations, as well as thofe preceding, muft therefore be confidered as the refult of perfonal obfervation.

There are cafes of this difeafe fo flight, that the affection of the throat produces no inconvenience, and may be wholly overlooked. In this form it appeared to Sydenham and De Gorter. I have known fingle cafes of this kind, but never knew this to be the general character of the difeafe when epidemic, as muft fometimes have been the cafe, if we may truft the descriptions of the phyficians juft named. No one dies of this fpecies of Scarlatina. Reft, quiet, and diluents are alone required. It may be compared to the mildeft fpecies of fmall-pox.

On the other hand, there is a fpecies of Scarlatina to which the name of Purpurata ought rather  
to

to be given, for the efflorescence is of a purple, not of a scarlet hue, in which, though the throat be deeply and extensively ulcerated, the pain and difficulty of swallowing are comparatively small, for the passage is kept open, and the sensibility of the part destroyed, by the progress of gangrene. In such cases, extreme feebleness and rapidity of the pulse, and great foetor of the breath, appear even in the commencement of the disease. The heat does not rise much above the standard of health. Great debility, oppression, head-ach, pain in the back, vomiting, and sometimes purging, accompany its rapid progress: the patient sinks into the low delirium, and expires on the second, third, or fourth day. This disease is to be treated by large quantities of bark and wine, and the other remedies employed in gangrene. The cold affusion is scarcely applicable to it, and the tepid affusion makes little impression upon it. In my experience indeed, all remedies have been equally unsuccessful. It outstrips in rapidity, and it equals in fatality, the purple confluent small-pox, to which it may be compared. Happily it occurs rarely. I have not seen it more than five or six times in the course of twenty years practice.\*

These

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\* The last case of this kind occurred in May, 1802, in a family in Thomas-street, which I attended, with Mr. Minshull.



These are the two extreme forms under which Scarlatina appears. But the form which it has assumed in Liverpool, with few exceptions, so far as my experience or enquiries extend, is intermediate between these extremes; sometimes leaning more to the one, and sometimes to the other; this observation applying not to particular cases only, but generally to the epidemics of different seasons. This is the Scarlatina Cynanchica of Dr. Cullen, the Scarlatina Anginosa of Sauvage; by which last name, as being most generally adopted, I shall speak of it.

After some previous lassitude or weariness, of uncertain duration, the Scarlatina Anginosa comes on with the usual symptoms of pyrexia—shivering, pain in the back and head, nausea, and frequently vomiting; in proportion to the violence of these symptoms, and to the rapidity of their progress, is the danger of the disease; in an hour or two  
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One of the children had the scarlatina in a very mild form; another had it very severely—with this the father slept: he was in his office of business on Friday, and was dead on Monday morning. His symptoms were those described—purple eruption, &c. He had the tepid affusion approaching to cold, with little benefit. The different species of this disease which existed at one time in the same family, all springing from one contagion, were alone decisive of the question respecting the identity of Scarlatina Anginosa, and Cynanche Maligna.

the heat begins to return, and speedily mounts up far beyond the temperature of health, this return of heat being generally attended by a great sensibility and bright-red flushing over the whole surface of the body, with some stiffness of the neck, hoarseness of the voice, and rawness of the throat.\*

If the thermometer be applied to the surface of the body after the sensation of heat has become steady, the mercury will be found to rise to  $105^{\circ}$ . and  $106^{\circ}$ . even in mild cases, and in the more violent cases to  $108^{\circ}$ .  $109^{\circ}$ . and  $110^{\circ}$ . I have known it rise as high as  $112^{\circ}$ . the greatest heat I ever observed in the human body. It is on the first appearance of this high temperature that it is necessary to act with vigour. On our conduct at this critical season the patient's life often depends.

The plan that I follow, if called in at this early period, is to strip the patient, and dash  
four

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\* The great heat in this disease was noticed by some of the early writers on the subject, particularly by Sennertus; but it has been very much overlooked by the moderns, and was never at any time before ascertained by the thermometer, so far as my enquiries extend. I consider it as the most important feature of the disease. Scarlatina Anginosa is probably the hottest of all the diseases to which we are subject; it is certainly the hottest of all the febrile diseases of this climate, a fact which I have ascertained by actual admeasurement of them all.



four or five gallons of the coldest water to be procured, over his naked body. This produces its usual cooling effects; but these are less permanent than in typhus. In one or two hours afterwards the heat is often found, on examination, as great as before. The affusion is therefore repeated again and again, as the obstinacy of the heat may indicate. It is sometimes necessary to use it ten or twelve times in twenty-four hours. At the end of this time, but commonly earlier, the force of the fever is broken, and a few tepid affusions, at longer intervals, are sufficient to subdue it entirely. During this time, cold water and lemonade should be used as drinks, and the bowels opened, if necessary, by calomel. In a few cases I have thought it advisable to assist the affusion by the diaphoretic power of a solution of tartarized antimony. If left to myself I use no other means.

Considerable languor and debility, with a disposition to rest and sleep, follow this bold arrestation of the fever. I have seen these appearances such as to excite some uneasiness lest coma were coming on, or the powers of life sinking. But I never saw any real ground of alarm, and it is sufficient to keep up, if necessary, the heat of the surface of the body, and particularly of the extremities, by integuments, leaving the patient to that profound repose in which nature

ture delights after violent agitations. On the third day very generally, or sometimes the fourth, the patient is convalescent. If the throat be examined, there will be found some fulness and redness, and perhaps some white specks on the tonsils, but nothing that can be called ulceration. There are, of course, none of the secondary symptoms to which ulceration gives rise. No ichorous discharge corroding the neighbouring parts, descending down the æsophagus, and producing diarrhæa;—attacking the epiglottis and larynx, and occasioning croup; or entering the absorbents and producing buboes in the parotids, or other glands of the neck. Neither do inflammation or irritation pass along the eustachian tubes to derange the functions of the ear, or ascend to the brain itself, and disturb the sources of life. In no instance did I ever see delirium come on after the use of the cold affusion.

The peculiar dropfical affection indicated by the swelling in the hands and feet *does* frequently occur, and sometimes there is a slight cough. These pass away of themselves, or if necessary, may be removed by the digitalis and chrystals of tartar.

In cases where, from the timidity of parents, or the apprehensions of those with whom we are  
called



called to consult, this decisive practice cannot be fully adopted, the tepid affusion may be had recourse to with very considerable, but inferior effect. It will not arrest the disease unless very slight, but it will moderate its violence, by moderating the heat, and in the end producing sensible perspiration. It was observed to me by my friend, Dr. Clark, of Newcastle, whose great sagacity and extensive experience are entitled to every respect, that in some instances, where he had used the tepid affusion with immediate but transient diminution of the heat of fever, he had afterwards had recourse to immersion for ten or fifteen minutes in the tepid bath, with more permanent effect: he found from this immersion a lasting, sensible perspiration, which almost every writer on the disease, has laid down as its favourable crisis, generally considering this as the means by which the noxious cause is expelled from the system, and not perceiving, that it is the process by which nature in all cases throws off superabundant heat.

Where I do not see the Scarlatina Anginosa until the third or fourth day, or even later, if the morbid heat continue to be great, I use the cold affusion; if less considerable, the affusion cold or tepid. It is still an excellent remedy; diminishing heat and irritation, and producing quiet sleep; but

but though it lessens, it cannot arrest the disease. If the ulcers of the throat are foul, and the breath foetid, an infusion of Cayenne pepper, stronger or weaker, according to the sensibility of the parts, makes an excellent gargle: half a grain of pepper to an ounce of water is a proper strength to begin with. This was recommended to me by the late Mr. Macbeth, of Demerara, and it deserves the praises he gave it. It is detergent and antiseptic in a high degree; it may even be given internally with advantage, in those cases which sink into debility and putrescence, and where bark and wine are indicated.

These last remedies, experience has taught me to use much more rarely than formerly, and always with a reference to the heat of the patient, and dryness or moisture of his skin.

During the fifteen years which preceded 1797, I had much experience in the established remedies in Scarlatina Anginosa. To the use of blood-letting and purgatives—a fatal practice—the use of bark had been substituted, and certainly with great comparative advantage, though with very imperfect success on the whole. The effective administration of bark in this disease is generally indeed a matter of great difficulty. The pain and irritation attending deglutition often  
render



render the patient most averse to swallowing it in the form of powder or decoction, even where he may be influenced by rational motives, and produces an invincible repugnance to it in the great majority of patients, whose tender age does not admit of their conduct on such occasions being regulated by their understandings. In such cases a perplexing situation arises; either we must abandon the remedy, or administer it by force, under the uncertainty of its producing benefit, and the certainty of the injury arising from the mode of its being administered. To escape from this painful dilemma, bark has been given in the form of clysters, by which there is no doubt that its effects on the system, though in an inferior degree, may be induced; and it has been applied to the surface quilted in linen or cotton, on the supposition that the absorbents of the skin might take up some portion even of the dry powder in this form; a notion which seems to me utterly foundationless, while the bark jacket, as it is called, is evidently calculated to do mischief, from the heat and irritation it must certainly occasion.

Far be it from me to oppose my authority to the numerous and respectable names by which bark is recommended in this disease. The effects of this remedy are not immediate or obvious, and are therefore not very easily ascertained; but I

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must be allowed to say, after long and attentive observation, that I am doubtful of its producing benefit, and that I am inclined to ascribe the superior success which followed its introduction, rather to the abandoning the former fatal system, than to the direct influence of that which was adopted.\*

The effects of wine are more obvious : this remedy has often been grossly misapplied. In the hot stages of Scarlatina, with a dry skin, it is highly injurious ; but in the after stages, when the heat is abated and the skin open, especially if the strength be sinking, and the ulcerations in the throat assuming a putrescent form, it is a remedy of the first importance. Since I began the treatment by affusion, I have however had very little occasion to use it either in this or in the typhus fever.

Previous to the adoption of this treatment, I had, on a full comparison, convinced myself of the general superiority of the mode of practice of Dr. Withering—the early use of emetics—to any other, and

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\* The extract of the letter from Dr. Fothergill to Dr. Withering, (see Dr. Withering's account of scarlet fever, p. 10), clearly shews that Dr. Fothergill himself, became doubtful of the beneficial effects of bark in this disease.



and I have also to say, that I entirely agree with that excellent physician in the reprobation of blisters to the neck, from which I never in a single instance could perceive benefit, and from which I have suspected very detrimental effects.

In the years 1798, 1799, and 1800, several cases of Scarlatina occurred, in which I employed cold and tepid affusion, according to the degree of heat and the stages of the disease, with very general success. I was fully prepared therefore for the treatment of the wide-spreading and fatal epidemic which broke out the latter end of the summer of 1801. My family was at that time in the country, where it was seldom in my power to visit them. The scarlet fever had appeared among the children in their vicinity, and carried off several. My two youngest children who had not had the disease, both boys, one five, and the other three years of age, had been in company with some of these children at play, and had been exposed to the contagion. I gave directions that they should be watched narrowly, and that I should have intimation of the first appearance of complaint. On the morning of the 15th of Aug. a message was sent me, that the eldest of the two had been restless and uneasy in the night, with feverish chills, and pain in his head and back. I saw him in seven hours from the first of these chills :

he was then becoming hot, and had vomited up his tea: his face and neck were beginning to flush, and it was evident that he was attacked by Scarlatina. His younger brother had constantly slept in the same bed with him; though then walking about, he was evidently spiritless and languid, and there was little doubt that he also had caught the disease. In a little while the eldest boy became very hot, and the youngest sick and restless. He followed his brother, step by step, at the distance of about seven hours. The heat of the eldest soon raised the mercury of the thermometer to  $106^{\circ}$ ,  $107^{\circ}$ , and  $108^{\circ}$ , and in both, the symptoms prognosticated a violent disease. I had lost a girl of four years of age in Scarlatina a few years before, though her first symptoms were far less violent; she perished in consequence of the ulcerations extending to the epiglottis and larynx, and producing the symptoms of genuine croup. I shut myself up with these boys entirely; and with plenty of pump-water and a pocket thermometer, prepared, not without anxiety, to combat this formidable disease. It would be tedious and useless to go into details. As soon as the sensation of heat was steady in my eldest boy, I stripped him naked, and poured four gallons of water over him, of the temperature of  $64^{\circ}$ . The usual good effects immediately appeared, but at the end of two hours he was as hot as ever



ever—the remedy was again applied, and repeated as the return of heat indicated. By the time the eldest was ready for his third affusion, the youngest was ready for his first. The heat rose in the eldest to  $109^{\circ}$ . in the youngest to  $108^{\circ}$ . and the pulse in each was upwards of 150. In thirty-two hours the first had the affusion fourteen times; eight times cold, twice cool, and four times tepid. Twelve affusions sufficed in the case of the youngest, of which seven were cold. The fever was in both completely subdued. On the morning of the third day they were both evidently safe; and on the morning of the fourth, though the pulse was still a little more frequent than natural, they were both convalescent. In this state they inclined to sleep and rest. The scarf-skin peeled off them both, and each had a slight degree of swelling in the hands, but none of the other secondary symptoms.

I might multiply these details, for the epidemic of that season would afford me ample scope; but this would be tedious and unnecessary—One other narrative, illustrative of the effects of the affusion in different stages of the disease, shall therefore suffice.

In the same month (August, 1801) the Scarlatina appeared in a back court out of Peter-street, which contained eight small houses, and forty-eight

eight inhabitants, twenty-six of which were children.\* The two first that were affected, died; several others were taken ill, and consternation seized the rest of this little community. It happened that Mr. Barr, foreman in Mr. M'Creery's printing-office, lived in this court, and that two of his children were affected by the disease. He applied for my assistance, and I undertook of course to give it to the others also. I found nine children in different stages of Scarlatina, but all admitting of the use of affusion, cold or tepid. I had not the slightest difficulty in persuading their parents to use it; they all followed implicitly the example of Mr. Barr. The mode of applying it was simple enough. The weather was warm, and the patients were brought out into the middle of the court, naked, where the water from the neighbouring pump was dashed over them. As the heat declined, the water was made tepid. Not only was the affusion employed for the sick, but once a day for the children in health also. It might

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\* For a description of these Courts, see p. 347. The particular court mentioned above, communicated with the street by a covered passage, 26 feet long, and only 2 feet 10 inches wide, and this is the only exit or entrance. The court itself is 54 feet long, and 7 feet 10 inches broad, and contains eight small houses, four on each side, the doors of which front each other, and open into the court.



might serve as a preventive, and at any rate it promoted cleanliness, which was enforced as essential—Ventilation was also promoted to the best of our power.

After this system commenced, four or five others were seized with Scarlatina, who all had the disease in the most favourable way. Those in whom it was advanced, when I first saw them, went through the secondary symptoms—one of them with severity; but the whole recovered. No medicines were used, except a beverage of water acidulated with muriatic acid, an infusion of Cayenne pepper as a gargle, and calomel, where a cathartic was required—Milk, broth, and gruel formed the nourishment.

By these simple, but powerful means, were death and disease banished out of these sequestered families, and health restored in fourteen or fifteen days. It is not a little curious, that ten children, all susceptible of Scarlatina, so far as was known, escaped it entirely.

A circumstance occurred during my attendance which deserves to be mentioned. One of the children, supposed to be taken ill of this disease, was uncommonly oppressed in the first stages, and the heat much lower than in any other case. It varied

varied from  $99^{\circ}$ . to  $102^{\circ}$ . No doubt however being entertained of the complaint, this child was subjected to the cold affusion during the eruptive fever, in the same manner as the others. But as the disease proceeded, it turned out to be the purple confluent small-pox, and the patient died, as is usual in such cases, on the eleventh day of the eruption.\*

A case nearly similar occurred in the present year. When the 24th regiment of foot was quartered here about eight months ago, I was desired by the assistant surgeon to visit its hospital.—Among other patients there was a young soldier just brought in; he had been affected by fever about twenty-four hours before, and was particularly oppressed in his head and stomach, with violent pain in his back—he had shivered and vomited severely. On examining his heat, it was much less than usually accompanies such symptoms in fever—there was a hoarseness in his voice, and his face was a little swelled, and darkly flushed. I advised the tepid affusion, approaching to cool, which was several times repeated. The disease turned out to be small-pox, of the purple confluent

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\* Mr. Barr, who is quoted in the course of the above narrative, is the person whose hands are employed in setting it for the press,



confluent kind, and terminated fatally, notwithstanding every support from food or medicine. It appears then that there are cases of small-pox, as well as of Scarlatina, which do not receive the usual advantage from the cold or tepid affusion, and that in the one disease as well as the other, these are cases which show little morbid heat in the eruptive stage, and in which great malignity and putrescence appear from the first.

To return to Scarlatina—this disease continued prevalent during the autumn of 1801, and throughout the succeeding winter and spring; and though less frequent since, it may be said to have been constantly present in Liverpool, more or less, up to the present time. In all the cases which I have seen during this period, amounting to upwards of a hundred and fifty, I have uniformly followed the practice which I have just described, and with a degree of success so nearly invariable, that I cannot contemplate it without emotions of surprise, as well as of satisfaction. In the course of this time, I have had occasion to combat the Scarlatina twice in public schools, and in both instances was completely successful, not merely in the recovery of my patients, but in stopping the progress of the disease. The use of this remedy undoubtedly strengthens the security in the means of prevention, recommended in the writings.

writings of Dr. Haygarth, Dr. Clark, and Dr. Blackburn, and now generally adopted by the scientific part of our profession. I have received various interesting communications respecting the success of this practice in Scarlatina, from several of my medical friends, particularly Dr. Rutter, Mr. Dale, and Mr. Heaton, to which I would readily give a place here if my limits would admit. I cannot however refuse myself the pleasure of publishing the following communication from Dr. Gregory, Professor of the practice of Medicine in the University of Edinburgh, which reached me at the moment that this sheet was going to the press. The weight of such an authority will be duly appreciated by the world; and Dr. Gregory's evidence shall be given in his own full, clear, and forcible language.

*“ Edinburgh, 9th Nov. 1803.*

*“ Dear Sir,*

“ It is to inform you of part of my family distress, and at the same time to thank you for a piece of very valuable practical instruction, which I received from you two years ago, indirectly, and at second hand, that I write to you at present.

“ You will remember that, about two years ago,



ago, you informed Dr. Wright\* of the success which had attended your practice of cold affusion, in fifty, out of fifty-two, cases of Scarlatina. Dr. Wright shewed me your letter, and as your observations appeared to me very interesting, I transcribed into one of my note books that part of your letter, *verbatim*, and have read it the two last winters in college, when treating of the Cynanche Maligna; telling my pupils that I had no personal experience of the practice, but that I thought your testimony in its favour, and the analogy of the good effects of the very cold practice in continued fever, and in natural small-pox, so strong, that I was resolved to try your practice of the affusion of cold water in Scarlatina, the first good opportunity; meaning the first recent, violent case, with great heat, and frequent strong pulse, that should come under my care.

“ It happened that I saw none but slight and very favourable cases of the disease till last August, when I was called to a girl of thirteen, who had been ill of the Scarlatina, with a very bad sore throat, for near a week. She seemed to me very likely to die, and in fact did die, in a few days.

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\* My excellent friend Dr. Wright, now President of the College of Physicians of Edinburgh, with whose important narrative this volume commences.

“ I mentioned in consultation the cold practice by affusion, but could not urge it, for two reasons ; first, because the circumstances of her disease seemed to me very unfavourable for it ; the hot state of it was past, and the symptoms of debility, putrefaction, delirium, stupor, and even some watery bladders on the skin (which I have very seldom seen) were come on. I could not expect to save her by your practice, and I could easily foresee, that an unsuccessful use of it would have brought a reproach upon the practice, and would have prevented it from being followed in other cases, in which it might probably have done good. In the second place, the girl’s own situation was so peculiar, \* \* \* \* \* that I was very unwilling, for moral and prudential reasons, to try any new and rough practice on her ; for if she had died under it, which most probably would have happened, it might have been said, that she was chosen as the subject of a severe and dangerous experiment, because she was a helpless, unprotected orphan. So she had her chance by the best of all other means, that I knew of, for her relief, particularly bark, wine, acids, fruit, the cool regimen, great cleanliness, and ventilation ; and, at one time, opiates and astringents, on account of colliquative diarrhœa ; but all to no purpose.

“ The next patient in Scarlatina that I had  
occasion



occasion to see, was a nephew of my own, the eldest son of my deceased brother, a stout boy of fourteen, of the melancholic temperament. Whether he brought the contagion of it with him from England, whence he came in the beginning of October, or whether he got the contagion in my brother-in-law's house, near Edinburgh, which I suspect was the case, as the children of that family had had the disease last winter, though in a very mild form, I know not; but soon after he arrived in Scotland, and in that house, he was attacked with Scarlatina. The case proved a pretty smart one, with ulcers in the throat, copious scarlet efflorescence, hot skin, and pulse 120; but as I saw no symptoms of danger in it, I did not urge the cold affusion, but told him, that if he grew worse he should be soured in the most complete manner. He recovered perfectly well, and soon, without it; and after much purification of himself, his clothes, and his baggage, was received into this house three weeks ago.

“ This day se'ennight (1st Nov.) my eldest son, a boy of six years of age, of a sanguine temperament, and very irritable constitution, was taken ill about noon, when out at his walk. Your friend, Benjamin Bell, saw him before I did, for having called on me to speak about a patient, he enquired for my wife, and found the child with her,

her, lying on a settee in her dressing room. She anxiously begged of him to examine the child, and see whether he had got the scarlet fever, which, from the circumstances already mentioned, she suspected might be the case. Mr. Bell had no difficulty in pronouncing at once that the disease was the scarlet fever; for even by that time (within two hours from the invasion) the eruption of red prominent points was very copious, and evident, so as to give a general roughness and redness to the skin of his breast. In that state I found him soon after Mr. Bell left him; his pulse frequent, and small, his skin but just beginning to grow hot, and his hands rather cold. He complained of general oppression, uneasiness, and head-ach. The velum pendulum, uvula, and tonsils, were of a dark purple red; but there were no ulcers or apthæ on them, that I could see. Before six at night, he had much more severe head-ach and oppression, with nausea, vomiting, and diarrhœa; his pulse 140, and very strong, his skin very hot, and of a bright red, with a considerable roughness all over it.

“Conceiving this to be a case of the most imminent danger, and, in every respect, proper for your cold practice, I lost no time in getting him taken out of bed, stript, and set erect in a tub; in which situation, I poured a gardener’s watering-



watering-pan full of cold water all over him, from head to foot. This relieved him a good deal ; and, as you may believe, cooled him very effectually : but before ten at night, the symptoms had recurred with more violence than ever. His pulse was 160, and very strong, his face turgid, his eyes growing red, his skin very red from head to foot, and very hot. I did not take time to measure the heat of his skin by the thermometer ; but I think it must have been at least 104° of Fah<sup>t</sup>. I immediately repeated the cold affusion as before, and with the same good effect. He was immediately cooled and refreshed ; and half an hour after, I found his pulse 120, and the heat of his skin very moderate. He had a pretty good night ; but before eight next morning was become very hot again ; on which account the affusion was repeated in the same manner. He said he did not like my way of bathing, and would rather be bathed in his own tub ; and as I thought, from the state of the symptoms, that there was occasion for it, he was bathed in his own tub, and fairly laid under water, over head and ears, between eleven and twelve at noon, and again at six in the evening of the second day.

“ These five good sousing, in twenty-four hours, seemed to me to have done the business completely. The eruption was not repelled, but  
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the progress of the local affection in the throat seemed to be stopped. I could never see any ulcerations in it, though I looked carefully for them, in consequence of having observed much foetor of his breath on the second evening. The force of the fever, as to heat and frequency, and strength of pulse, seemed to be quite broken after the fifth ducking; to such a degree even, that I began to have some fears that the *vis vitæ* might fail, and had actually provided wine to be at hand, to give him from time to time, in case of need, and saw him several times during the night between the second and third day of his disease. But I found no occasion to give him any of it; nor has he had a grain of medicine, or even a drop of wine during his illness; so that you must allow it has been a very fair experiment of the cold affusion, as a remedy for the scarlet fever. Indeed ever since the morning of the third day, (forty-three hours from the invasion of the fever) I have considered him as a convalescent, though he had occasionally, for three days afterwards, some transient quickness of pulse and heat of skin. His throat was quite well the morning of the fourth day; the same day he had some slight swelling of his hands; but not the twentieth part of what I have often seen after a severe attack of Scarlatina. He has had for some days, a kind of crick in his neck, or pain extending from his

right



right ear towards the shoulder, which makes him carry his head awry, inclined to that side ; and I can feel some of the lymphatic glands enlarged ; but they are not bigger than large pin heads. He is losing his cuticle by desquamation, as was to be expected ; he has been washed with tepid water and soap for three or four nights, to promote that desquamation, and relieve the itching of his skin. He has not yet recovered his flesh, strength, or colour ; but seems in a fair way to do it soon, for he has a keen appetite and digestion, and, for three or four days has been able to play as usual in his nursery ; this being only the ninth day of his disease.

“ You may be sure, from this detail, that I am perfectly well pleased with your practice in this disease : and that I shall gladly follow it in any proper cases of the same kind that may come under my care, if I am allowed to do so. I can now propose and urge the practice with a good grace, and some confidence, after having tried it with success on a child of my own. It is more than possible that I shall soon have occasion to try it on two other sons of my own ; one of them past four, the other of them almost two years of age, and both of them of the same sanguine temperament of their eldest brother. Both of these younger children were exposed to the contagion

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from their cousin, my nephew, as much as my eldest son was, and both of them were with *him* when he sickened, and for two hours after, so that I could have no hopes of completely preserving them from the contagion; I therefore allowed them to be fully exposed to it, by sleeping in the same room with their elder brother, and playing with him whenever he was able to play. The two younger children are also the subjects of another experiment: both of them have had the cow-pox, which my eldest son had not. Him I had inoculated with the small-pox, many months before I ever heard of the cow-pox.

“ Thus far I had written, (Wednesday, Nov. 9th) and meant to have said that the experiment going on in my nursery, might help to ascertain the point, which I understand has been a matter of conjecture and speculation, whether the cow-pox preserve those who have it from the scarlet fever, as it seems to do from the small-pox, and as it is said, from the plague. If my two younger children escaped it, when so completely exposed to the contagion, it would give some countenance to that favourable opinion with respect to the cow-pox; if either of them took the scarlet fever, it would effectually put an end to that opinion; for *major est vis instantiæ negativæ, in omni axioma vero constituendo*; but the experiment



ment in that respect is already finished ; and that point settled unfavourably for the cow-pox\*. Yesterday afternoon, my youngest son sickened, and had the usual symptoms of oppression, sickness, vomiting, diarrhæa, frequent crying, frequent pulse, copious red eruption on the skin in less than three hours after he began to be uneasy, flushing of the face, and increase of heat : but neither the frequency of pulse, heat of skin, or flushing of the face, have been nearly so great as they were in his brother. I have not been able to see the inside of his throat, but as his voice is somewhat affected, and hoarse, I presume he has a slight degree of Cynanche ; but he swallows both liquids and solids without difficulty, so that I have no great fears from the state of his throat. His eyes have been less red, but more watery, than his brother's were, and he has had a very copious salivation, which his brother had not.

“ Though he was never so hot as his brother, he was washed in a tub with cold water, about seven o'clock, and again about eleven, last night, and twice to-day already with tepid water, as he was still less hot than yesterday, and his feet even cool. He has been relieved by the washing all the

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\* The universal adoption of the cow-pox in Liverpool, and the prevalence of Scarlatina, had decided this question long ago here.

four times, and has always gone to sleep after it for a longer or a shorter time. At present I see no symptom of peculiar danger about him.

“ My other son (the four-year-old gentleman) has not yet sickened ; but I expect him to be taken ill to-night or to-morrow : for last night he had very little sleep, and frequently through the night, and to-day, he has complained of being tired. *Lassitudines spontaniæ morbos denunciant*, is one of the oldest maxims that I know of in physic. Whenever he sickens, I mean to treat him as I have done his brothers.

“ This long and minute detail will perhaps not be altogether uninteresting to you, as the author of that practice which I have followed : but that I may follow it the more confidently in other cases, and be enabled to answer some of the many questions that will be put to me about it, I beg you will inform me, if you have made any other interesting observations respecting it ; and particularly if you have observed any bad effects, either immediately or remotely from it. How long have you observed the febrile state to continue after its force was broken by the cold affusion ? Have you observed more or less of the anasarcaous swellings of the extremities after this, than after the common practice ? Have you observed after it any symptoms of ascites, or of hydrathorax,



hydrathorax, or any affection of the head, such as coma, delirium, or convulsions, or any parotids? Has the convalescence after this treatment been quicker or slower than usual?

“ I trust I need make no apology for giving you all this trouble.

Yours most truly,

J. GREGORY.”

To the questions of Dr. Gregory I replied in course of post. As however the answers given may be clearly inferred from what I have already said of the effects of the affusion applied early in preventing the secondary symptoms, it is unnecessary to insert my letter at length. The result of the whole was, that my experience afforded no grounds for any of the apprehensions implied in the very judicious inquiries which he had made. I concluded with a request to be informed of the progress of the disease in his family. This was complied with in the following letter.

“ *Edinburgh, 10th Nov. 1803.*

“ Dear Sir,

“ I thank you for your kind attention in giving me such a full and speedy answer to my  
long

letter. It is most completely satisfactory to me in every respect; and I am sure it will give you satisfaction to know that my children have ALL done very well, under your practice for the Scarlatina. The eldest and youngest, though they have not yet fully recovered their strength, are recovering it very fast, are in excellent spirits, and on the whole so well, that they have been out of doors repeatedly, both in the carriage and on foot; though the weather has been very cold, even with frost and snow, for some days. Both of them have still some swelling of the lymphatic glands on both sides of the neck, extending from the ear almost down to the shoulder. This I think the more remarkable, as I could see no ulceration in the throat, and no particular cutaneous affection on the hairy scalp of either of them. The swelled glands are no longer painful, and are already growing smaller and softer; so, I presume, they will disengage completely without any difficulty.

“ The extraordinary salivation which the youngest child had, was soon and completely explained. It appeared that the scarlet-fever had brought on, or at least accelerated, a fit of teething, and that two new teeth were just cutting the gum: they are now quite through, and of course he is perfectly at ease: but, for four or five days after the Scarlatina was subdued, he seemed to suffer



suffer more from the irritation of teething, than he had done from that often severe and dangerous fever.

“ The four-year-old gentleman whom you inquire after, sickened on Monday morning, 14th November, or some time in the night between the 13th and 14th. He had been complaining for five days, much and frequently, both day and night, of being tired; at day-break on Monday he complained much of headach, and, upon looking at his skin, he was found to be from head to foot, as red as a boiled lobster. His pulse for two days, was nearly as quick as his elder brother's had been, (from 130 to 150) but it was not nearly so strong, nor was his skin ever so hot as his elder brother's had been. The eruption still remains very copious (Thursday afternoon, the fourth day of his disease.) There was very little redness, no dark purple colour, and no ulcers in his throat, which I have seen, well, and repeatedly every day. He had no vomiting or diarrhœa, as both the others had; but his body continued quite open as in his perfect health. Supposing the headach, which in him was very severe, to proceed from the stomach or bowels, being in some measure loaded, I gave him on the afternoon of the second day, three grains of calomel, which did not operate as a  
 purge,

purge, but soon, and very effectually as an emetic; and seemed to remove his headach; but as this returned on the morning of the third day, after being suspended for about sixteen hours, two good leeches were applied to his temples, by which he lost a good deal of blood, with great and immediate relief to the headach; which has not yet returned, and I presume, never will return.

“ The cure in this boy, as in the other two, was trusted to the washing; but as his pulse was not very strong, nor his heat very great, the water was not perfectly cold, though very gently tepid; so little warm as to make him shiver. It seems to have succeeded as well with him as with either of his brothers: the heat of his skin, which is still red, is little more than natural; his pulse is come down to 108, he has eat his dinner to-day with a good appetite, and about an hour ago I saw him walking, or rather staggering about his room; but I presume he would soon tire of that, and go to bed again, as he is still weak. I conceive him to be a fair convalescent.

“ I have had much pleasure in observing repeatedly in the youngest child (the two-year-old gentleman) the great and immediate good effects of the cold or tepid washing, not only in lessening  
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ing the frequency of pulse and heat of skin, but in relieving the febrile oppression and uneasiness. The little patient, who just before was crying very much, unable to hold up its head, incapable of being pleased or amused with any thing, nay almost incapable of looking at any thing, immediately after being washed, (I mean in two or three minutes) would begin to look up, and take notice of the people near him, then amuse himself with his playthings, then get upon his legs and run about upon the floor, and at last go quietly to sleep.

“ From what you mention in your letter, I am sure such observations must have been quite familiar to you.

Yours most truly,

J. GREGORY.”

To comment on cases related with such circumstantiality and precision, would be to weaken their effect, and with this single observation, that I suspect the heat in the first of Dr. Gregory's cases to have been several degrees higher than he supposed, I leave this interesting narrative to the reflections of the reader.

Before

Before I conclude the subject of Scarlatina, I must *again* enforce the superior advantage of using the affusion early in this disease; and the propriety of ascertaining that the skin is dry, and the heat of the patient greater than natural, in all cases, especially in such as are advanced, and where, of course, the strength is considerably impaired.

It has come to my knowledge, that in two cases of Scarlatina, of the most malignant nature, the patients have been taken out of bed, under the low delirium, with the skin cool and moist, and the pulse scarcely perceptible. In this state, supported by the attendants, several gallons of perfectly cold water were madly poured over them, on the supposed authority of this work! I need scarcely add, that the effects were almost immediately fatal.

It has happened in several instances, that the cold, cool, and tepid affusion, have been used in the early stages of the Cynanche Tonsillaris, or common inflammatory fore-throat. Though I should not have used it in such cases by design, I never found injury to arise from it. On the contrary, it was uniformly followed by a mild disease.

I should



I should have been still less inclined to have prescribed it intentionally in the measles, on account of the disposition to pulmonary affection which attends that disease. It has happened to me, however, to have directed it four different times by mistake, in the eruptive stage of measles, and in like manner, the disease that followed was singularly mild in every instance.

When the Influenza was prevalent last spring, I did not employ the affusion on account of the cough and pulmonary symptoms which attended that disease. I contented myself with diaphoretics, blisters, and diluents. My patients recovered under this treatment, though in some instances, slowly, and with difficulty; especially in cases where there had been a previous asthmatic or consumptive tendency. Though constantly exposed to this disease, I escaped for nearly two months; but at length was seized by it severely in the beginning of May. Being of a phthical constitution I was not without anxiety as to the debility it might induce, or the pulmonary affections it might leave behind; and reflecting on the remedies I had employed, it did not appear to me that any of them had materially shortened the disease. I determined therefore to try the tepid affusion, approaching to cool, and subjected myself to the shower bath every three or four hours

hours regularly, at the temperature of  $85^{\circ}$ . The effects were in a high degree grateful, soothing, and invigorating. I suffered nothing from pulmonary affection, either during or after the disease. The debility went off very soon, and I recovered more speedily than any of my patients. The great peculiarity of the Influenza seemed to be the speedy debility which it induced, and the morbid sensibility of the nervous system by which it was accompanied. The heat in this disease was not great. It varied from  $99^{\circ}$ . to  $101^{\circ}$ . and  $102^{\circ}$ . which is pretty nearly the temperature of measles. Though I attended to the subject, I am at a loss to decide whether the Influenza was contagious or not. If contagious, it spreads by laws peculiar to itself.

It will be proper to say a few words of the affusion of warm water on the surface of the body; that is, water of the temperature of the blood, and upwards. This produces a very considerable sensation, of a highly grateful nature, but is followed by a great degree of chilliness, and sometimes by pulmonary affections in persons disposed to them; in others by catarrhal affections, and the other symptoms which indicate what is meant by the common expression of having *caught cold*. I have used it chiefly in maniacal affections, and sometimes in them with soothing effects.



fects. That it produces a powerful influence on the system of sensation, the following case will shew.

H. D. a young man in an apothecary's shop in this town, intending to take an ounce of tincture of rhubarb, swallowed by mistake an ounce of laudanum. He immediately perceived his error, and took as quickly as he could, but not till two minutes had elapsed, three grains of tartarized antimony, attempting at the same time to bring on vomiting, by irritating the internal fauces. Finding his efforts unsuccessful, he took almost immediately six grains more, and a sudden terror seizing him, from perceiving the effects of the laudanum, he left the shop, and ran as fast as possible to my house, (a distance of about three hundred yards) for further assistance. I was sitting in my study, when I heard a furious ring at the outer-door, which was instantly opened, and the young man rushed in upon me, with marks of the greatest agitation. Before he had time to speak, vomiting came upon him, and learning the circumstances of the case from the master of the shop, who followed close after, I encouraged the vomiting by warm water, and incessant irritation of the fauces. Experience had taught me that there is no safety without keeping up vomiting for a considerable time, and it was continued for half  
an

an hour or upwards, at the end of which time, the stomach became unirritable, and debility and stupor increased upon him. He however contrived to walk home with considerable difficulty, supported all the way.

When laid upon a settee, his eyes appeared suffused and heavy ; his pulse was 95, and rather feeble ; and drowsiness, notwithstanding constant external impression, was fast gaining ground. In this state, I directed several gallons of warm water to be poured on his naked body, which had the singular effect of removing entirely the drowsiness for about ten minutes ; but it returned again, and he could scarcely be kept awake by constant shaking. This agitation however brought back the vomiting, and he rejected the vegetable acid which had been directed for him. The warm affusion was repeated a second time, with the same effects as at first. The tongue soon after looked white, the skin grew hot, and the pulse rose to 105. The warm affusion was repeated a third and last time ; immediately after which, a very cold fit took place, with great tremor and faintness. He was put into a warm bed, and allowed to sleep, but the disposition to it was gone ; about nine hours after the accident, he was able to take sago, and fell asleep. In this

state



state he continued through the succeeding night, and awoke in the morning, languid, but refreshed and free of all complaint. I give this case chiefly from the notes of the gentleman affected.

The use of warm water was in the first instance accidental in this case—I had ordered the tepid affusion; but observing the water to be very warm, (probably  $106^{\circ}$  or  $108^{\circ}$ ) as it flowed over him, and that a great effect was produced, it was continued of nearly the same temperature.

CHAP.

## CHAP. XXIII.

*Communications to the Author respecting the Use of the Cold and Tepid Affusion in different parts of Great Britain.*

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BEFORE I presented to the world an account of the use of water externally and internally, as a remedy in fever, I had witnessed its effects for a period of ten years, and for five years of that time, in hospital practice, under circumstances most favourable to accurate observation. By this means, in announcing the remedy, I was enabled to lay down certain rules for its administration, which, if not perfect, were however safe ; and I had it in my power to exhibit its effects, on so large and so varied a scale of observation, as to render it improbable that the results could be substantially erroneous, though they might not be precisely correct. My publication was favourably received at home, and the second edition translated into the French and German languages. The progress



gress of the practice it recommends has been as rapid as I could have hoped, or perhaps wished; for it was not my desire that it should be embraced with the vehemence of enthusiasm, but that it should be received after slow and cautious investigation; and it was impossible for me not to deprecate its being employed at all by those practitioners whose character of mind, and habits of life, render them impatient of the close, and sometimes painful attention necessary to the administration of such powerful remedies. In the space of six years this practice has however made considerable progress through the island; there are few parts of it in which it is unknown, and there are some in which it may be considered as fairly established.

In London, it has been more coldly received than in most other places, a circumstance, which if it were necessary it would be easy to explain. I have however reason to believe, that it is now making some progress there,\* and its success under the direction of Dr. Dimisdale, in the hospital for fever, denominated the House of Recovery,

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\* See the paper of Mr. Blegborough, in vol. viii. p. 158, of the Medical and Physical Journal, and that of Mr. Pearson, in the same volume, p. 357.

very, is so striking, that though the account of it is already given to the world, I think it proper to insert it here.

*Extract from an Account of Cases of TYPHUS FEVER, in which the Affusion of cold Water has been applied in the London House of Recovery. By W. P. DIMSDALE, M. D.*

### CASE I.

“ James Johnson, aged eight years, caught the infection from his parents, who died of fever. He was removed on the 19th May, 1802, into the House of Recovery. On the 23d of May (the twelfth day of the disease) the symptoms were as follow:—pulse extremely frequent; tongue covered with a dark fur, and very dry; skin dry. A thermometer placed under the tongue arose to  $104^{\circ}$ : constant and violent delirium. The usual medical treatment not being attended with success, recourse was had to the affusion of cold water. He was taken out of bed, stripped, and a pitcher of cold water was poured suddenly over him: after being wiped, he was replaced in bed. He slept an hour; the skin felt more relaxed; no perspiration however followed.

May



May 24th, pulse 120; skin dry; heat 100°; delirium continues; no sleep in the night. The affusion was repeated with a pail of cold water. He again slept quietly, was evidently more collected when he awoke; and soon afterwards a profuse perspiration came on, which continued through the night. On May 27th (the fourth day after the cold affusion had been first used) he was entirely free from fever.

## CASE II.

“ Thomas Knight, aged twelve years, was admitted June 16th, on the fifth or sixth day of typhus. In the afternoon, pulse 116 ; skin dry, with numerous petechiæ ; heat 104° ; eyes suffused ; violent pain of the head. The cold affusion, with a pail of water, was directed. The pain of the head subsided, he slept quietly, and copious perspiration followed. From this time the symptoms were favourable. On the 22d he was free from the disease, on the fourth day after he was removed from the house.

### CASE III.

“ John Harrogan, aged twenty-six years,  
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came into the house on July 8th, the fifth day of the disease: pulse 120: tongue furred and dry; skin hot and partially moist; delirious at intervals; pain of the head and back. July 9th, violent delirium came on in the night, two nurses were unable to keep him in bed. The matron of the house sent for me at five o'clock this morning: he was then extremely outrageous; pulse 136; skin hot and parched. He was placed by force under the shower-bath, and two pails of cold water were poured instantly over him. The transition from a state of extreme fury, to perfect calmness, was truly surprising. Without an effort of resistance on his part, he was replaced in bed: profuse perspiration succeeded. In three days he had no symptom of fever remaining.

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#### CASE IV.

“ Alfred Sweeting, aged four years, was removed into the House, 13th July: he caught the infection from his mother, who died in a small and dirty apartment. On July 15th, fourth day of the disease, pulse very frequent, skin dry, heat  $102^{\circ}$ ; tongue slightly furred, countenance expressive of much uneasiness. The shower-



bath was used : he appeared immediately to be much relieved ; general moisture of the skin followed. On the 16th he was free from fever. This patient took only the saline mixture, and afterwards small doses of the diluted nitrous acid.

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### CASE V.

“ Henry Hancock, aged twenty-eight years, was on the 10th of August, the fifth day of typhus, removed into the house. Pulse 120 ; tongue furred, slightly moist ; skin very dry, heat  $105^{\circ}$  ; severe pain of the head. The shower-bath was directed. The pain of the head was removed instantly : perspiration succeeded. The symptoms continued favourable to the 14th, when he had no complaint remaining except weakness.

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### CASE VI.

“ George Johnson, aged fifteen years, came in on the 13th of August. On the 14th (fifth day of typhus), pulse 124, heat  $98^{\circ}$ , slight partial moisture of the skin ; the tongue furred, and  
much

much general uneasiness. August 15th, he has been very delirious in the night, and extremely restless: complains of violent pain of the head; pulse very frequent, tongue furred, rather dry; skin dry, numerous petechiæ over the body: heat  $103^{\circ}$ . The shower-bath was immediately used. The pain of the head was instantly removed, but no general perspiration followed. In the evening the head-ach and the other febrile symptoms returned with nearly the same severity as before. The cold affusion was again used, and he felt immediate relief. Copious perspiration very soon succeeded, which continued through the night. He was free from complaint on the 17th, the third day after the first use of the cold affusion.

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## CASE VII.

“ John Beard, a boy aged eleven years, was admitted on the 21st of August, in the third day of fever, with the usual symptoms: pulse frequent; much thirst; pain of the head and back; the skin rather moist. 22d, skin dry, heat  $103^{\circ}$ , pulse 116, tongue furred; pain of the head continues. The cold affusion was directed immediately, and applied again in the evening. He  
passed



passed the night easily, the skin was partially moist: he had some refreshing sleep. August 23d, the skin is now dry; heat  $104^{\circ}$ ; complains as before of much pain and general uneasiness. He again used the shower-bath. In the evening, the skin being dry, and the heat  $102^{\circ}$ , it was repeated: profuse perspiration came on in the night. 24th, skin very moist; heat  $98^{\circ}$ ; pulse 100; tongue slightly furred; says he feels much better. In the evening, during a short absence of the nurse, feeling a slight return of heat and uneasiness, he poured a pitcher of cold water which was in the room over himself into the bed. The nurse returning immediately, she removed him to a dry bed: he slept quietly through the night, the skin moist, and awoke in the morning quite free from fever. The only medicines, ordered in this case, were the saline mixture, and small doses of Colombo.

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### CASE VIII.

“ Abraham Johnson, aged twenty years; was admitted on the 6th of September, with the usual symptoms, in the fifth day of fever. Sept. 7th, skin dry; heat  $100^{\circ}$ . The shower-bath was used, which produced considerable relief. On the

the 9th the heat was again  $100^{\circ}$ ; the skin dry. The cold affusion was repeated. He was free from fever on the 12th.

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### CASE IX.

“ Mary Johnson, aged eleven years; removed into the house August 13th, in a late period of fever. She relapsed August 22d. On the 23d, pulse 132: tongue covered with a dark fur, rather dry; skin dry, heat  $103^{\circ}$ ; pain of head and back. Copious perspiration succeeded the cold affusion, and in two days she was entirely free from fever.

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### CASE X.

“ Robert Holmes, aged twenty-six years; admitted September 7th, with fever of uncertain date. Pulse 100, tongue slightly furred; pain all over the body. In the evening the skin became very dry; heat  $100^{\circ}$ . A slight delirium with which he was affected, subsided immediately on the use of the shower-bath. He was free from fever on the 10th, but extremely feeble. By the use of a nourishing diet, and small doses of  
the



the bark and wine, he gradually regained his former strength.

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### CASE XI.

“ John Dutchfield, aged twenty-one years ; admitted on the 25th of September, with the usual symptoms of fever. On the 28th (ninth day of the disease) skin dry, heat  $100^{\circ}$  ; used the shower bath ; the heat diminished, the skin became moist. On the 2d of October he was free from fever.

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### CASE XII.

“ Mary Simmons, aged forty-two years, was admitted November 18th into the house, with the usual symptoms of fever ; the date uncertain. On the 20th, pain of the head exceedingly violent ; skin dry ; heat  $99\frac{1}{2}^{\circ}$ . The head-ach ceased immediately after the cold affusion, the skin became rather moist. On the 23d, the heat again rose to  $99\frac{1}{2}^{\circ}$  ; the skin dry ; copious perspiration followed a repetition of the affusion. She was free from fever on the 25th.

### OBSERVATIONS.

## OBSERVATIONS.

“ It appears unnecessary to relate the other cases in which the cold affusion has been used. In all, the good effects of it have been strikingly manifest, and in no instance has the disease terminated fatally after the use of this remedy. In the early stages of typhus the affusion, with very little assistance from medicine, appears to cut short the progress of the disease. In the more advanced periods, when the strength of the patient is sufficient to admit the application of this remedy, it moderates the violence of the symptoms, and contributes materially towards a favourable termination. When the strength is greatly exhausted, it may probably be wholly inadmissible. The patients almost invariably expressed great satisfaction, after the agitation immediately following the affusion had subsided. The violent pain of the head, so distressing in fever, is almost constantly and immediately removed, and generally, quiet sleep succeeds, with moisture of the skin.

“ Case the 7th furnishes a strong illustration of these remarks. The boy always after the first affusion, went to the bath with perfect readiness, and even solicited its repetition. The almost



almost immediate discovery of the affusion which he had himself practised, prevented any injurious consequences ; and it is evident from the report of the following day, that the slight exacerbation of fever which came on in the evening, was completely removed by this application. The feelings of the patient in this instance immediately prompted him to have recourse to the remedy, from which he had before experienced so much relief.\*

“ Spring water has been used hitherto without any addition. A shower-bath is placed in the House of Recovery, for the purpose of applying the remedy. It is obvious that the affusion is by this means rendered more complete than by any other mode of application ; it is also neater, and more commodious. Ablution of the body, by spunging with cold or tepid water and vinegar, has been frequently employed with advantage : it is however less effectual than the affusion.

“ I shall

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\* “ The reader who is desirous of information as to the use of the *cold affusion* (or of the *tepid bath*) in cases of *scarlet fever*, is referred to Dr. Currie's Medical Reports, p. 60, 61, and 62 ; and to some other parts of that excellent work.” Dr. Dimsdale.—See in this edition, chap. xxii.

“ I shall feel peculiar gratification if this short account, by confirming the facts stated in the elegant and truly valuable publication of Dr. CURRIE, should tend to accelerate the general introduction of a remedy so important in the treatment of fever ; being fully convinced from the uniform success which has attended the practice, that it may be used with perfect safety in this disease, “ when (to use Dr. Currie’s “ words) there is no sense of chilliness present, “ when the heat of the surface is steadily above “ what is natural, and when there is no general “ or profuse perspiration.”

*5th Jan. 1803.*

This account was obligingly communicated to me by Dr. Dimsdale on its first publication. Four months after, I wrote to inquire the result of his farther experience, and received the most satisfactory reply. It had, during that time, been used very extensively, and except in two instances, with invariable success. The two patients who died, he observes, were both admitted on the seventh day of fever ; no remedy had been employed previously to their admission, and the cases were so extremely violent and irregular, that they appeared to be nearly hopeless. The cold affusion relieved the more violent symptoms temporarily,



porarily, but did not prevent the fatal termination of the fever. He adds, that from a comparison of these with other cases which have occurred in the House of Recovery, it may be fairly presumed that the remedy would have been effectual in an earlier stage of the disease.

At Edinburgh, the metropolis of the northern division of the island, ablution of the surface in fever has been practised for several years with great advantage by Dr. Gregory, and perhaps by others. During last winter the cold and tepid affusion were employed in sixty-four cases of fever in the clinical ward of the Edinburgh Infirmary, by my friend Dr. James Home, with extraordinary, I believe I may say, invariable success. In most of these cases the disease was too far advanced, on admission, to allow of its being cut short; but in such cases as presented themselves in the early stages, and particularly in some of the nurses who caught the infection from the patients, its power of arresting the fever was evident and striking. Dr. Reeve observes, “the number of patients labouring under fever admitted last winter into the clinical ward, was unusually great. In the treatment of these patients, which was extremely judicious in every respect, the most striking and marked advantages were

were derived from the affusion of cold and tepid water. To the manifest influence of these powerful agents, our clinical professor, Dr. Home jun. attributed with great modesty, and apparently with great justice, the very favourable termination of so many and such dangerous cases. As far as observation during three years will enable me to judge, the continued fevers of Edinburgh are generally attended with catarrhal symptoms. In most of the patients in the clinical ward last winter, these symptoms were strongly marked. In some cases the cough was so violent as to require blisters, and even bloodletting. The danger was still farther increased in these instances by violent head-ache, great prostration of strength, delirium, and petechiæ. The skin in most cases was very hot and dry. The greatest degree of heat ascertained by the thermometer was  $106^{\circ}$  in the case of a young girl. The most important point, as you have justly remarked in your Medical Reports, which required to be established by experience alone, was the safety of employing the affusion in cases of fever combined with symptoms of local inflammation. Now the frequent trials made at Edinburgh afforded most satisfactory results on this subject. Not one of the patients who had symptoms of catarrh, or inflammation of the lungs, suffered the least inconvenience from the cold or tepid affusion; none of their symptoms were aggravated



gravated or increased by it, but on the contrary most of them were relieved. The tepid affusion was generally employed when the catarrhal symptoms were strongly marked. The effects of this application did not exactly correspond with those stated in your 10th chap. In some instances it did not diminish the heat of the skin, or the frequency of the pulse, even in cases where the cold affusion produced these effects. The tepid affusion was less permanent in its effects, as you have observed; for in no case did it produce a total cessation of the fever, although it always alleviated the symptoms very much, and diminished their violence. The cold affusion generally arrested the progress of the fever when it was employed early in the disease; but the cutting short of the fever did not always follow the reduction of the pulse and the diminution of the heat. In one case the heat of the body was reduced  $4\frac{1}{2}^{\circ}$  by the cold affusion applied in the evening; and in another, the pulse was reduced thirty beats in the minute, without the disease being stopped. It appeared that the flow of the menses was interrupted by the tepid affusion, but they returned on discontinuing its use, and no inconvenience followed." \*

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\* This account obligingly given me by Dr. Reeve, of Norwich, corresponds with communications made to me on the same

The cold affusion has been employed in fever with success in Glasgow, and several other parts of Scotland, but the details I have received relate to single cases only, which it would be useless to insert.

From Dr. Bree, Physician to the General Hospital, and to the Dispensary of Birmingham, I have received a clear and valuable report, on the condition of the poor in that great manufacturing town, as far as respects health and disease. The limits to which I am confined prevent me from inserting it entire, but I hope it will in one form or other be presented to the public; in the mean time I must content myself with that part of it which more immediately refers to the subject of this publication.

Birmingham, from the form of its buildings, seems less exposed to infectious fever than Liverpool, or most other great towns. The poor there do not inhabit cellars, and the courts are more spacious and better ventilated than ours. Fever occurs

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same subject, by my friend, and kinsman Dr. Thomas Duncan, and by Dr. Bouchel, of Ghent, both of whom attended the clinical ward, when conducted by Dr. Home last winter. (1802-3). I hoped to have had a very full and precise communication from Dr. Home himself, but an accidental circumstance has occasioned me to be disappointed.



occurs there however as every where else, but it was more especially prevalent in the years 1799 and 1800. In the winter of those years, the remote causes of fever existed generally in the dearth of provisions, and want of employment for workmen. Dr. Bree points out how these operate in a detail which appears equally just and affecting. The fever originating in defective nutrition and cloathing, depression of mind, and contaminated air, was often preceded by purging and vomiting, immediate effects of debility in the first passages; when these were restrained by medicine, fever very often ensued. "The fever," says Dr. Bree, "was not very different from that which you have described. When delirium did not appear at the very first, it came on about the seventh day, after great pain of the head, and in two days it was followed by stupor and deafness. Then the patient frequently began to recover, but sometimes his brain was greatly affected, and he grew worse. The well-known signs of the most dangerous state of typhus appeared, and death was the result. In these cases the pulse was sometimes not more frequent than 100 in the exacerbation, but unless the brain was particularly diseased, the pulse encreased in frequency towards the close. The heat was from  $100^{\circ}$  to  $110^{\circ}$  Faht. in the same circumstances. In many cases the symptoms

were very similar to those that distinguished the fever described by Sydenham, sect. 5. chap. 8, particularly as regarded the pain and stupor of the head, and rheumatic pains in the breast and neck. In these, sweats appeared to be critical after the 14th day, and then a disposition to sweat continued for several weeks coming on in the night. I found in several instances that checking the perspiration under such circumstances was injurious.

“ This fever continued in 1801, though rather on the decline. It particularly affected pawn-brokers, whose custom was to take the cloaths of the miserable victims, in pledge for a small loan to furnish them with immediate subsistence; these cloaths were of course often infected.” Dr. Bree enters very particularly into the distress, moral and physical which contributed to this disease. “ Many families had subsisted on barley and potatoes in scanty portions for many months, frequently without even a pound of butcher’s meat for their Sunday’s dinner. I have seen not unfrequently beans boiled with salt and water into a soup, that served for food during several days.” After entering into a variety of particulars of this kind, Dr. Bree proceeds as follows. “ If you consider the above sketch necessary to distinguish the typhus



phus here, as influenced by our internal circumstances, you will excuse this detail. It is a more pleasing task to speak of a simple and efficacious means of prevention, or cure, when the constitution is not deprived of that support of food which is essential under every plan of medical treatment; this remedy is the aspersions of cold and tepid water. It will be obvious why I have particularized the difficulty of subsistence, and the moral causes of distress. No estimate could be made of the value of a remedy, if the counteracting influence were not calculated.

“ There was only one variety, which according to my observation, would not receive with great advantage the aspersions. This was where the patient had rheumatic pains in the muscles of the head and neck, and in these instances I found advantage in the suggestion of the practice, as it led me to recommend the cleansing of the skin with tepid salt and water, but not in a way to give a shock.

“ I have sometimes used the aspersions when a cough accompanied the fever, and though I was timid in this practice, I have reason to think that it was beneficial. Under the circumstances that you point out of bodily heat, in general cases of

typhus, I have found excellent effects from aspersion of cold or tepid water. The advantages seemed to be combined, the heat of the body was reduced to  $97^{\circ}$  or under, and the skin was rendered more clean and healthy, and therefore more capable of transpiration. When the heat was steadily above the temperature of health, cold water was applied without hesitation, and it seldom failed to give tranquil feelings, sleep, and perspiration, and to reduce the pulse. It was often the most active remedy in families of from five to eight persons, who in consequence of a want of recommendations, had only partial assistance from the medicines of the Dispensary, whilst the disease appeared to affect the whole.

“ When the fever had been protracted beyond the fourteenth day before I saw the case, I judged it most prudent to apply tepid water, and that without a shock in most cases, but the cleansing effects were in my opinion, in all cases beneficial. In several instances, I am convinced that the fever was extinguished by cold affusion only. These were chiefly cases of children that had received the infection from their parents, who probably had taken care of their offspring at the expense of their own support. I could offer many details of this practice in particular cases, but as I adopted your directions and reasonings, only



only modified according to local circumstances, it would be useless to take up your time with such details.

“ The internal remedies for the fever were, bark, and the usual stimulant cordials. We seldom saw the disease at the period when antimonials are useful. Cold drinks were generally directed, but cold water was not so distinctly useful as a drink, as in external application.

“ In addition to the tonic and stimulant class of medicines that are well known, I employed a medicine, which after much experience of its effects, I can recommend as a powerful and cheap substitute for the bark, or any combination of bark with other stimulants. It was prepared as follows.

“ Take oak bark bruised, and roughly powdered; horse radish roots sliced; of each, an ounce. Boil the oak bark in two pints of water, till one pint be consumed. Add, before the boiling is finished, the horse radish. Then cover the vessel till the decoction is cold, and strain it for use. Sometimes elixir of vitriol was added to this, and if purging was threatened, or general uneasiness was felt, thirty drops of tincture of opium were added to each pint. Two ounces were given every

every four or five hours, and this medicine, with the aid of asperſion of water, or of waſhing the ſkin with vinegar and water, or ſalt and water, where the full effect of cold bathing was improper, was attended with ſucceſs in many of the worſt caſes that occurred, and after remedies of the moſt eſtabliſhed credit had entirely failed.”

“ *Birmingham, Feb. 1803.*”

That the affuſion of cold water has been employed at Norwich has already appeared from the communication of Mr. Dalrymple. It was pre-viously employed by Mr. Martineau of that city, as appears by his valuable communication in the third volume of the Medical and Phyſical Journal, *p.* 51. I have the pleaſure of learning from Dr. Reeve, that this ingenious practitioner continues the uſe of this remedy, and has lately extended it to Scarlatina with great ſucceſs.

I have much ſatiſfaction in finding that the method of treatment of fever which I have recommended, is gaining ground in the military hospitals of our iſland, where I have no doubt it will ſoon be completely eſtabliſhed. The following narrative of my friend, Mr. Maſhall, ſurgeon of the royal Cheſhire Militia, contained in a letter addreſſed to me, which has already appeared in the Medical and Phyſical Journal for  
November,



November, 1801, has essentially contributed to extend its progress, and deserves in every point of view to be re-published.

To Dr. CURRIE.

*Liverpool, July 20, 1801.*

“ Sir,

“ In the month of May, 1800, the Cheshire regiment were in barracks at Gosport, when the typhus fever made its appearance among them. It was probably communicated to them while on duty over the French prisoners, among whom it prevailed. The first symptoms were a dull head-ach, with restlessness and shivering, pains in the back, and all over the body, the tongue foul, with great prostration of strength. The head-ach became gradually more acute, the heat rose to  $102^{\circ}$  and  $104^{\circ}$ , and in one instance to  $107^{\circ}$ ; and in general the restlessness increased to delirium, particularly in the night. The fever spread with rapidity. At first we employed the usual remedies; emetics in the first instance, antimonials for a day or two afterwards, to keep the skin soft, then wine, in proportion to the debility, from a pint to a quart and upwards, daily, with nutritious diet, and an opiate, consisting of 40 or 50 drops of the tincture of opium  
every

every night. The bowels were kept open with calomel and rhubarb, and barley water and lemonade were drunk at pleasure. In four cases I gave three bottles of wine a day. These seemed desperate, but all of them finally recovered. Port wine seemed scarcely to stimulate in these instances at all; I changed it for Sherry, and this I sometimes mixed with brandy. In a single month the wine cost me ten pounds four shillings, though I had a great part of it from the mess, where it was laid in in quantity, and on the lowest terms. I used few blisters and no bark. This last medicine I had given before, in a number of similar cases, at Winchester, without any benefit. Where there was delirium, which was pretty general, the head was shaved. This practice I continued for two months; during that time thirty of the men were seized with the infection, and in few or no instances was the disease stopped by the emetics or antimonial sudorifics. The fever ran from thirteen to seventeen days, and in some cases to three or four weeks. We lost during the fever one man only, but several from the effects combining with other causes, particularly pulmonic consumption.

“The contagion continued to spread in spite of all our endeavours. At length we had twenty-five



five in the hospital together, in the different stages of the disease.

“ Finding none of the usual means successful in arresting the fever, I had recourse to the affusion of cold water; this was towards the end of July. The first case in which I tried it was that of a battalion man, in the second day of the disease, I stripped him naked and threw four or five gallons of sea water over him, dried him, and put him to bed. He felt very comfortable, became drowsy, and slept for two hours; when he awoke his skin was cool and moist, the pulse nearly natural, and the head-ach in a great measure gone. In the evening the fever returned; I threw the water again over him with the same happy effect. He had a good night's rest; next morning he was free of fever, and he was dismissed cured, on the third day from his admission.

“ Pleased with this success, I immediately adopted the same practice in nine other cases of fever, from the first to the fifth day of the disease, with equal benefit. In six other cases, from the sixth to the tenth of the disease, I followed the same practice; in three of these with complete and nearly immediate success, having used affusion only thrice with each. From the debility however which had been induced by  
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the longer continuance of the disease, they were not so immediately fit to be discharged from the hospital. In the three other cases sensible relief was obtained, and they all recovered in the end, but the disease ran its course. Encouraged by the success and safety of the practice, in one instance I went so far as to try the cold affusion on the sixteenth day of fever. At the moment, the patient seemed almost insensible to the shock. When he was replaced in bed, his extremities and his surface were cold; the pulse became fluttering, and scarcely perceptible. We used frictions, and poured warm wine into him in small quantities at a time, which he swallowed with great difficulty. He recovered his power of deglutition, and we increased the wine gradually to three bottles a day. He recovered in the end, but was upwards of three months in the hospital.

“ In a few weeks, the old cases that were on hand when I began the use of the cold affusion were discharged, but the contagion, from the nature of the duty, continued to spread in the regiment. and many cases of fever occurred in the months of August and September. These were watched narrowly, the cold affusion invariably used, and in general on the second day. The effects were similar to those related of the case  
first



first mentioned; the success was invariable. One of these cases, that of Holding, of the grenadiers, was remarkable. He was taken into the hospital on the 20th of September, late in the evening of the second day of fever, with the usual symptoms, but in the severest form. An emetic was administered, and the affusion deferred till morning. The emetic operated well, but his night was extremely restless, his head-ach particularly acute, and delirium came on with great violence. It was necessary to employ force to keep him in bed. In the morning of the 21st, (the third day of fever) I found his heat had arisen to the uncommon height of  $107^{\circ}$ , and his pulse was 125. The cold affusion was employed; he screamed from the severity of the shock; but, on returning into bed, he appeared much refreshed, was perfectly sensible, and said that he thought himself well. On examining about ten minutes after the affusion, the heat was found to be  $100^{\circ}$ , the skin moist, the pulse 110. He slept for nearly four hours in perfect tranquillity. In the evening the fever returned. The affusion was repeated again with similar benefit. He slept the greater part of the night. Next morning the fever returned once more. The remedy was once more applied, and the disease was subdued. He was dismissed from the hospital on the 29th.

“ By

“ By this time the hospital was thin from the rapid discharge of the patients, but the contagion still continued to spread in the regiment. The cold affusion was invariably applied, and, in general, on the second day of fever, as has already been mentioned. At length the contagion was extinguished; when we left Gosport, in the month of November, not a single case of fever was left behind. From the end of July to the 31st of October, I employed the cold affusion in sixty-four cases. In sixty of these I arrested the disease, having seldom occasion to use the remedy more than twice or thrice, and in no one case more than four times. In the other four cases, (all of which are alluded to in the course of this narrative) the disease being advanced, was not stopped by the remedy, though the patients ultimately recovered.

“ From the time I began the use of the cold affusion, I used little or no wine, no opium, nor indeed, almost any other remedy, in any one case in which the cold affusion was employed.

“ A great part of these facts was witnessed by Dr. Franklin, physician to the district; nearly the whole of them by my fellow-surgeons, Mr. Varenne and Mr. Worthington; and the general truth of this representation will be confirmed by  
my



my friends, the officers of the Cheshire, particularly by Major Buckworth,\* who frequently visited the hospital. I have the pleasure of adding, that any evening on parade, I can point out the individuals whose cases I have mentioned.

I have the honour to be,

Your very obedient servant,

JAMES MARSHALL.

*Surgeon, Royal Cheshire Militia."*

Any comment that I could make on this narrative would only weaken its effects. Experiments such as these, so clear and simple, on so large a scale, and performed before so many witnesses, cannot, it should seem, be invalidated. Mr. Marshall's practice was in exact conformity with the directions in the "Medical Reports." It was the low contagious fever that his patients laboured under; it was in the early stage of the disease that he employed the remedy, and generally in the state of the greatest heat and exacerbation; lastly, it was affusion, not immersion, that he employed.

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\* This spirited and accomplished Officer, had called on me immediately after the Cheshire regiment marched into Liverpool, (a little before the date of this letter) to introduce Mr. Marshall to my acquaintance, in order that he might communicate the above important particulars.

I might mention similar instances of success in other regiments, but not on so good authority, or such complete information. I shall not therefore allude to them farther, except to express a wish, that those who have withheld the particulars from me, will find some other means of laying them before the world.

I might publish a number of individual cases of the success of the cold affusion, chiefly communicated to me two or three years ago, by respectable practitioners in this neighbourhood, and in other parts of England; but the results are so uniform, and the circumstances so much alike, that I have thought it now unnecessary to present them to the world, and must content myself with offering my thanks generally, for the kindness and zeal, [of which, had I returned to the press earlier, I should undoubtedly have availed myself. I ought not, however, to omit mentioning the frequent intimations given by Dr. Reid, of the use of the cold affusion in the practice of the Finsbury Dispensary.\* That respectable

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\* In the Monthly Magazine, and Medical and Physical Journal.



respectable physician has lately extended the use of this remedy to scarlatina with great success.\*

I have only to add, under this head, that the use of the cold affusion has been introduced into the Isle of Man, under the skilful direction of Dr. Scott, who has found it in some instances advantageous to precede it by an antimonial emetic.

I have no particular accounts of its progress in Ireland, where it was had recourse to by a very particular friend of mine, not of the medical profession, three years ago, in the case of a brother of his, dangerously ill of fever, with the immediate removal of delirium, and every wished for effect.

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\* See the Medical and Physical Journal for January, 1804, p. 27.

## CHAP. XXIV.

*Some Account of the use of the cold affusion in fevers on Ship-board.*

VARIOUS histories are to be found in the records of medicine, of persons, who under the delirium of fever, have thrown themselves into cold water ; in almost all of which it is mentioned as very extraordinary, that the patients, when taken up, were perfectly in their senses, and speedily recovered of the disease. Of these cases, a great number have happened at sea, where it is evident accidents of this kind are most likely to take place.\*

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\* In a work on the diseases of seamen, published by Dr. Cockburn, physician to the fleet, about the beginning of last century, after relating a case from Dr. Willis, of a young woman under fever, who wished to go a swimming, and who being indulged, afterwards recovered, the author adds ;  
 “ Some such like cases happen very often to our sailors, who  
 “ in



I have had authentic accounts of several accidents of this kind, which have happened on board of ships belonging to this port, within the last twenty years, and in every instance where the patient has been recovered from the sea, he has been found in a great measure free from fever. From the general views we have taken of the effects of the cold affusion or immersion in fevers, such results might be expected. Incidents of this kind do not occur under the low delirium, towards the termination of fevers, when the strength is exhausted, and the heat reduced, but in the earlier stages, under the high delirium, when the heat and agitation are great, and the patient is still possessed of the power of voluntary loco-motion.

It does not however appear, that in the maritime practice of medicine, of this, or of any other nation, advantage was drawn from these  
K k extraordinary

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“ the time that they are delirious, or have calentures,  
 “ when lying in their hammocks in a calm summer’s day,  
 “ they see the sea through the gun-ports, very plain and  
 “ smooth, and imagining it to be a green meadow, get up a  
 “ walking, and fall into the sea, but if they get at last into  
 “ their hammocks, (i. e. if they are taken up alive) they  
 “ sweat very plentifully, and shake off their fever.” See *Medicina Naut.* v. iii. p. 27.

extraordinary recoveries, till the voyage of Dr. Wright from Jamaica to England in the year 1777, with the account of which this volume commences.

Immediately after the publication of this important narrative, the use of the cold affusion in fevers was employed externally (as has already been mentioned) in Liverpool, and especially in our fever wards in the Infirmary, where it became familiar to the pupils of the house, and to various medical practitioners engaged in the African trade, or destined for the West Indies. By several of the African surgeons, the practice was adopted with success, but the accounts which I have received from them are not sufficiently particular for publication.

Mr. Wilson, Surgeon of his Majesty's ship the *Huffar*, employed the cold affusion with extraordinary success in 1795. The *Huffar* had taken a French ship from Guadaloupe off the Capes of Virginia, which had brought the yellow fever out of port with her, of which many had died. The disease spread rapidly among the crew of the *Huffar*, and the ship running northwards, landed eighty-three persons ill of the fever at Halifax, in Nova Scotia, in the month of June. There not being accommodation for them



them in the hospital, tents were fitted up for them on shore, in which Mr. Wilson attended them. His practice was to bleed early, generally in an hour after the accession of the hot stage. He then gave a solution of emetic tartar. The cold affusion was always administered in cases of delirium, which it immediately removed, inducing tranquillity and sleep. Of these eighty-three cases, Mr. Wilson did not lose one.\*

I regret that we have not a more particular account of the practice of Mr. Wilson. In the burning fever of the West Indies, especially when it effects youthful and vigorous Europeans, as in the case of the crew of the *Huffar*, it seems to me very probable, that early bleeding, followed perhaps by antimonials, may sometimes be advantageously employed preparatory to the cold affusion; and that the inordinate action of the vascular system being weakened by these previous steps, the cold affusion may afterwards be more speedily effectual. But this must depend on the vigour of the patient, and the effects produced by these remedies on his temperature; which in no case ought to be reduced so low as the standard of health, previous to the cold affusion, and it

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\* *Med. Nautica, vol. i. p. 361.*

seems also clear, that there is no safety in the use of blood-letting or antimonials, except they are had recourse to in the very first stages of the disease, and in patients in the vigour of life, as in the practice of Mr. Wilson of the *Huffar*. There is little doubt that this gentleman was partly indebted for his extraordinary success, to his attending his patients in tents, where they must have been much exposed to the open air, a circumstance which at Halifax, in the middle of summer, must have been no less pleasant than salubrious.

A practice similar to that of Mr. Wilson, was employed by Mr. Harris, Surgeon of the *Thunderer*. He also bled in the first stage of fever, and gave clysters of cold water, which were very advantageous. \* Experience has taught me, that the heat of the system may be effectually reduced by clysters of cold water, though not so speedily as by affusion on the surface, or even by deglutition.

Previously to the publication of the “*Medical Reports*,” Dr. Trotter, Physician to the Channel Fleet, had recommended the cold lavation

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\* *Med. Nautica*, vol. i. p. 860.



tion after the manner practised at that time by Dr. Gregory. His directions were, that every morning, a towel dipped in cold water should be passed over the surface of the patient, and afterwards that his linen should be changed. \* After the publication of this work, he encouraged the use of the cold affusion, as recommended in it, of the effects of which he has given several striking and satisfactory accounts. Some of these, I will take the liberty of extracting.

In June 1800, the cold affusion was employed by Mr. Farquhar, Surgeon of the Captain ship of war. His account of the effects are as follows :

“ In several cases of typhus which have occurred this month, I have made use of the affusion of cold water, and have found it to answer my most sanguine expectations, particularly in two cases where delirium had come on, and where, from the general debility, frequency, and irregularity of the pulse, great heat of the skin, &c. I had little hopes of recovery. The patients were put into a large tub, and had a couple of bucket-fulls of salt-water poured over them.

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\* *Med. Nautica*, vol. i. p. 279.

them. The shock which they at first received, appeared to be very severe, but the advantage which they derived from the practice was so great and manifest even to themselves, that they willingly submitted to its repetition next morning. They are both at present convalescent.”\*

In spring 1800, the *Russell* man of war, commanded by Captain Sawyer, was dreadfully affected by contagious fever, which after being subdued, broke out again in the harbour of Plymouth, in consequence, as it was supposed, of fresh infection received probably from the impressed men. The disease spread with great rapidity, and great numbers were affected. In this epidemic, the cold affusion was employed by Mr. G. Magrath, the Surgeon, with the happiest effects. In a letter to the Physician of the fleet, † he sums up his experience of this remedy in the following words :

“ I have now had ample experience of the effects of cold affusion in fevers, and from my own observation, will venture to pronounce it a safe and efficacious remedy, when the restrictions

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\* *Med. Nautica*, vol. iii. p. 162.

† *Med. Nautica*, vol. iii. p. 227.



tions so judiciously laid down by Dr. Currie are attended to. I can affirm, that no evil of any magnitude ever arose in the course of my practice from its adoption, *even when catarrhal symptoms were present.* I have experienced, *that the earlier this remedy is had recourse to in the disease, in like proportion it will be found more effectual in arresting the progress of fever."*

"Several cases have yielded to the cold affusion, without the assistance of any medicine whatever ; but I have found, that the prudent administration of evening anodynes, powerfully assists. In the more advanced stages, where the skin was dry and impervious, with more or less delirium, and where a cuticular discharge (sensible perspiration) could not be procured by the most powerful sudorific medicines ; by throwing a bucket of cold water over the patient, rubbing him dry, and laying him between the blankets, I found a comfortable glow to succeed, followed by a gentle and salutary perspiration, first appearing about the forehead and neck ; and by administering bland diluent drinks, such as balm, or sage tea, this perspiration would become general, the confusion of thought disappear, and the patient would fall into a calm and refreshing sleep, which sometimes lasted for  
hours.

hours. He would then awake much recruited, with an abatement of all the febrile symptoms; and in several a complete recovery took place under these circumstances.

“ Indeed, *invariable success has attended my endeavours, ever since I began to adopt this practice on a large scale.* It is now so perfectly familiar, that I have the utmost confidence in it; and feel justified in pursuing it from principles of humanity as well as of science. In some of the milder cases, I have known one bucket of water poured over the head and body produce such a shock, that the redundant heat and increased velocity of the circulation disappeared, and never more returned. The disease was by this means cut short, which otherwise might have been protracted to an uncertain duration with increasing malignity.”

The method of cure thus described by Mr. Magrath, was pursued by him in the harbour of Plymouth, and drew on him the attention and observation of the Officers, as well as Surgeons of the fleet, but he did not shrink from his course, and his triumph was in the end complete. Mr. Magrath was supported by Captain Sawyer and his Officers, whose attention and charity



city towards the sick, kept pace with the able and benevolent arrangements of the Surgeon. \*

In consequence of a notice which I inserted in the Medical and Physical Journal, inviting particularly military and naval practitioners, to favour me with the account of their experience of the practice in fever which I had recommended, I received an ample and valuable communication from Mr. Magrath, dated, *his Majesty's ship Amphion, Portsmouth, April the 29th, 1803*, to the whole of which I would willingly give insertion here, if my limits would permit. Mr. Magrath has enlarged his experience of the cold affusion, since the date of his communication to Dr. Trotter, and confirmed his inferences.

“ My first trial,” says he, “ of this remedy, was the consequence of multiplied disappointments in the ordinary modes of practice, and it was resorted to with no little circumspection, on account of the inveterate prejudices of such a class of men as sailors are ; but by steady perseverance, and dispassionate investigation, the happy effects of the cold affusion, were incontrovertibly

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\* Med. Nautica, vol. iii. p. 237.

vertibly developed, to the conviction of those on whom the remedy was used, and who were as anxious for its repetition at the proper periods, as I was to direct it.

“ I have now put this remedy to the test of accurate trial, in upwards of a hundred cases of typhus, differently modified by climate and season, and diversity of constitution, sometimes complicated with catarrhal symptoms, and sometimes with affections of the bowels, not only in the English Channel, but in the Baltic sea, and in the increased temperature of a southern latitude : and *with invariable success*. When employed in the first stage of fever, it frequently happens, that a single application is sufficient, and I have always observed, that it is more powerfully efficacious, in proportion as it is early resorted to, and that if neglected till the morbid catenation is strongly formed, the fever frequently resists the cold affusion for some time.”

Mr. Magrath laments, that the cold affusion has not been adopted generally in the navy, and expresses his indignation against persons who have aspersed and reprobated it without a trial, on mere prejudice. He anticipates the time as at no great distance, when it will be firmly established. In this  
last



last sentiment I perfectly agree; and in regard to the opposition of ignorance and prejudice, we shall bear it with more patience, when we recollect that it has so uniformly presented itself to all considerable improvements in our profession, that we might begin to doubt of the great advantage of the practice we are recommending, if it wanted this genuine mark of utility and of importance.

In the course of his letter, Mr. Magrath adverts to the great number of ships connected with the channel fleet, that in the course of the spring and summer of 1800, “ were contaminated with typhus contagion !” and considers this contagion to have originated in guardships, tenders, and receiving ships. The same sentiment is delivered by Dr. Trotter, in his valuable record of the diseases of the fleet—the *Medicina Nautica*, already so often quoted.

Dr. Trotter points out the *Actæon*, the receiving ship at Liverpool, as in this respect particularly obnoxious, and denounces the impressed men sent round to Plymouth from her, as having spread contagion through the channel fleet. I fear there is too much ground for Dr. Trotter’s charge. In adverting to the *Actæon*, he has mentioned my having on one occasion been called to examine the condition of the men sent from this receiving ship,

ship, and as the particulars may serve to illustrate our general subject, I will give them here in detail.

One of the vessels sent to convoy the impressed men from the *Actæon* to the channel fleet, was the *Reynard* sloop of war, commanded by Captain Spicer. She performed three voyages on this service in the course of the spring and summer of 1800. The first cargo which he carried round, having been infected with fever, and having, as it was supposed, spread it widely in the fleet, Captain Spicer was anxiously desirous on his second voyage, to take no seamen from the *Actæon* that were not in perfect health. His orders, which he communicated to me, and to the commander of the *Actæon*, were very express to that purpose. Accordingly, about an hundred men, supposed to be free of infection, were sent on board of the *Reynard*; but a contrary wind preventing Captain Spicer from sailing immediately, he perceived, or thought he perceived, febrile symptoms on some of those men, two or three of whom he returned to the *Actæon* instantly, and dispatched a summons to me on shore, to repair on board the *Reynard*, and examine the rest. \* I repaired on board accordingly,

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\* I was unacquainted with Captain Spicer, and no wife connected



cordingly, along with the gentlemen who superintended the department of the sick and hurt, and the impressed men were passed in review before us. A low contagious fever had got among them, and eighteen, who appeared to be affected, were sent to the hospital on shore. Captain Spicer sailed with the rest, but all our care had not secured him from the apprehended evil—four men were found ill of the fever on their passage, and sent to the hospital on the ship's arrival at Plymouth.

The *Actæon* deserved the character given of her by Dr. Trotter; she was indeed a disgrace to the service in various points of view. After this time, however, greater regard was, I believe, paid on board of her to cleanliness and ventilation.

The men sent on shore were attended by Dr. Thomas Cochrane, formerly of the island of Nevis, and now resident in or near Edinburgh, who had at that time the care of the French prisoners, and of the sick and hurt at this port.

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connected with the service; but no man could participate more fully in the anxieties of this brave officer, or obey his call with greater alacrity.

His practice was to employ the cold affusion, and it was used in the case of these men with its wonted success. This fever, which is said to have spread itself through the fleet, yielded readily to this simple remedy. My friend, Dr. Carson, now physician in Liverpool, assisted Dr. Cochrane, and on some occasions acted for him. He did not attend the individuals in question, but he has favoured me with the following particulars, which are important in themselves, and from which the successful practice of Dr. Cochrane may be clearly inferred.

“ In the month of December, 1799, an epidemic fever appeared on board his Majesty's ship *Actæon*, stationed at this port to receive the newly raised men for the navy. My friend Dr. Cochrane, who at that time had the charge of the naval hospital on shore, was a great advocate for the use of the cold bath in fevers and spasmodic complaints. I had at all times permission to visit the hospital. An occasion offered which I considered as favourable for using the cold bath, and I obtained Doctor Cochrane's permission to try the effects of a remedy, to which he himself had, in such cases generally and successfully had recourse.

“ Five men had been sent on shore, who had been seized with the epidemic the preceding day.  
About



About nine o'clock at night, I found several of them in a state which, from attention to your rules, I considered proper for the application of the cold bath. They complained of great heat and thirst. Their skin was dry and hot, tongue parched, great restlessness, with occasional delirium; pulse quick, respiration anxious, though without any cough or local affection of the breast. I did not venture to apply the cold bath to them all this evening; but selected one whom I deem the fittest subject for it. This man, having been got out of bed, and placed in a large tub, two buckets full of cold water were poured over him. He was then put to bed; nothing further was done to him. In the morning, I returned at an early hour, anxious about the success of the practice, and had the satisfaction to find him free from fever, and to understand that he had passed a comfortable night. He had no relapse, and in a few days was returned to the *Actæon* in good health. The other four, in whom the fever continued its course that night without abatement, were next day, in the presence of Doctor Cochrane, treated in the same manner, and with exactly the same success. The remedy was most grateful to the feelings of all these men, and there would have been no difficulty in persuading them to use it a second time, had there been occasion for it. This was the general practice with the fever cases from the *Actæon*.

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“ I have frequently seen the cold bath used in cases of fever, among the prisoners of war deposited here in the latter end of the late war, and always with complete success. But in the prison-hospital, fevers were, from obvious causes, too frequently attended with pulmonic affections to admit of the use of this admirable remedy.”

Doctor Carson has also communicated to me the following general testimony of the benefit of the cold affusion, in a letter to him from Mr. Simpson, Surgeon of his Majesty's ship *Naiad* :

*“ Ship Naiad, at sea,  
June 22, 1803.*

“ I have for a long time past been in habits of employing cold water externally, although in a different, and certainly far less extensive form than Doctor Currie recommends. And indeed, I do not know, who had any idea before his valuable communications, of the vast extent to which this scientific practice may be carried.

“ In every case of typhus, that for a long time past came under my care, I have always assiduously put in execution the application of vinegar and cold water, by a sponge or towel, to the head, neck, and breast, regularly every morning  
and



and evening, and in cases where debility was not far advanced, I have perhaps used it oftener. And I can with truth aver, that I have succeeded in a great number of instances, in arresting fever at a very early stage by a timely use of the cold affusion, as recommended by Dr. Currie. Indeed so successful have I been, that in all my reports for these last few years, I have scarcely had occasion to note any continuance of fever for any remarkable time, although I am well convinced, that if I had not practised the cold affusion, as recommended by him, I should not have been nearly so successful.

“ I have conversed with a number of ingenious men on this subject, and they have unanimously concurred in giving the strongest testimony in favour of this excellent practice.

“ I certainly feel authorised in saying, that fevers, which from every rational consideration, that could be adduced from previous knowledge, were likely to prove tedious, if not extensively fatal, have by means of the cold affusion solely, as far as I could judge, been happily arrested, and terminated favourably.

“ In almost every stage of fever, I have found this remedy useful, when prudently employed.

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When early put in practice, that is to say, as soon as the fever is properly formed, I never have found it fail of affording material relief; and generally a few applications have actually put an entire stop to the farther progress of the disease.

“ In a few instances however, when from the state of the pulse, skin, &c. I had apprehended, I should be warranted in using the asperision with cold water from a jug, I found that this did not succeed so well as the simple ablution with a sponge. Very severe and long continued rigours followed the asperision from a jug, and they did not terminate, as I had always found in other cases, in sleep, and a genial diaphoresis, nor was there the least abatement of head-ache. But this might proceed from the patients’ terrors at the sudden and unusual application. For certainly, until Dr. Currie’s practice became generally known, this application, the asperising a person in fever with cold water, was quite repugnant to the generally received opinions, and practice of mankind—at least I believe so.”

These testimonies in favour of the cold affusion, seem decisive of its beneficial effects in the maritime practice of our northern latitudes. If  
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it were necessary, it is in my power to add to them considerably. But candid inquirers will be more desirous of knowing how far it is equally salutary in the destructive fever of the West Indies, by which our fleets and armies have been so often enfeebled or subdued.

In consequence of my address in the Medical and Physical Journal already mentioned, I received a communication from Mr. L. F. Nagle, lately surgeon of his Majesty's ship Ganges, which bears on this point; and which appeared to me so very important in its nature, that I was desirous of giving it to the world with every stamp of authenticity: and Mr. Nagle having referred me for his character to Captain Freemantle, and Captain Baker, who commanded the Ganges, during the period of his service on board of her, I applied by letter to the first of these gentlemen, the address of the other not being known to me. The reply of Capt. Freemantle, dated March 17th, 1803, was perfectly satisfactory. He spoke of Mr. Nagle in the highest terms; represented him as no less honest than skilful; and assured me, that I might place the most perfect reliance on his representations.

Satisfied with the high authority of Captain Freemantle, and with Mr. Nagle's own perspi-

cuous and unaffected narrative, I present it to the world with perfect confidence, and with singular satisfaction. It was originally contained in a series of letters, and reduced to one unbroken narration at my request.

Copy of a Letter from Mr. Nagle to Dr. Currie.

“ *His Majesty’s Ship, Royal Sovereign.*

“ *Portsmouth, May 9th, 1803.*

“ Sir,

“ I took the first moment after my return from the West Indies, to acquaint you with the extraordinary success which has attended your new remedy in fever, the affusion of cold water, in my practice on board his Majesty’s Ship Ganges, of 74 guns, on the Jamaica station ; and I very readily comply with your desire to give the particulars a little more in detail.

“ The Ganges was commissioned at Portsmouth in August, 1800, at which time I joined her as surgeon. She was then, and for some time afterwards, remarkably healthy, from her high state of discipline ; but an infectious fever was brought on board of her by some marines, from the Malta,

at



at Spithead, in August, 1801.—Forty marines, and four seamen, ill of it, were sent on shore to the Royal Hospital, at Haslar, and this cleared the ship of the disease. We then sailed for the coast of France, and were on a cruise off Brest, from the 14th of September, to the 23d of October, at which time we were ordered to Jamaica, where we arrived on the 24th of November. During these ten weeks not a man died, and we reached the harbour of Port-Royal in remarkable health. We found a malignant fever prevailing among the shipping there. The mortality was particularly great on board the merchant ships at Kingston, many of them being almost unmanned by it. Soon after our arrival it broke out on board the *Ganges*, and spread rapidly, especially among the marines and landsmen, who had never before been in a warm climate. The symptoms were—severe head-ache ;—hot and dry skin ;—the face flushed ;—eyes red ;—nausea ;—thirst ;—the pulse strong, and full at first, and as frequent as 120 in the minute ;—pains in the back and limbs ;—great anxiety, and restlessness. The patients were in general under much depression of spirits from the accounts we had received of the great mortality from the fever. There was little chilliness in any stage of the disease, and remissions were scarcely perceptible. Heat of the skin was the most striking symptom. To what degree it actually rose, I had

no means of ascertaining, having unfortunately, broken my thermometer. I was therefore obliged to trust to my sensations, and those of the patient. But from the impression on my hand, I have no doubt that the heat in this fever, was many degrees greater than the temperature of health, and considerably more than in the common fever of England.

“ The violent, and rapid nature of the disease, convinced me, that early and decisive measures were required, and I determined to have recourse to the affusion of cold water, under the directions which you have given for its use. As soon therefore as the morbid heat fairly indicated the accession of fever, I poured a quantity of sea-water on the patient, from the head downwards; generally two or three bucket-fulls; and commonly directed the body to be afterwards wiped with a towel dipped in vinegar, but more with the view of preventing the sailors from thinking that I trusted entirely to the cold water, than from any supposition of the vinegar being required. I then put the patient into bed; gave him in general from eight to ten grains of calomel, with four or five grains of the pulvis antimonialis, and supplying him with plenty of diluent drinks, left him to his repose.

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“ The affusion, when used in the first, or even second day of fever, operated like a charm. The morbid heat and dryness of the skin were converted into an agreeable coolness, with some degree of moisture ; the pulse sunk very often from 120 to 90 ; the headache, flushings, restlessness, and agitation disappeared ; sensations of comfort were diffused over the whole body, and the patient fell into a natural and refreshing sleep. On awaking, two or three passages downwards from the calomel, seemed to carry off every remaining irritation. Most commonly the fever did not return ; but if it did, the bathing was repeated once, or perhaps twice, as might be required. Where I had not an opportunity of seeing the men for the first day or two of fever, which sometimes happened from their being taken ill on shore, and remaining there, the effects of the affusion, though strikingly beneficial, were not so immediately decisive, and it was requisite to repeat it several times. I had seldom occasion to use opium in this fever, for the cold affusion produced sleep, and in three or four cases in which I gave opiates at bed time, irritation and restlessness ensued ; the symptoms being encreased which the cold affusion had obviated. We had one hundred and twenty cases of fever in all, during the time I served on board the Ganges on the Jamaica station, (that is, from November, 1801,

to



to the end of July, 1802) in all of which the cold affusion was used, and of which we lost two only. One of these had been ill of a violent inflammation in the knee, for which I was obliged to use bleeding largely, and in this reduced state he was attacked with fever. The other was a marine, of a weakly habit, and a consumptive tendency. I did not use the affusion in this case, in the early stage of the fever, and when I did use it, I fear I persisted in it too long. These were indeed the only deaths which occurred on board the *Ganges* from the time we left Portsmouth, to the end of last July, a period of eleven months, as may be ascertained by my journal at the board of Sick and Hurt, and during this time, two men only were sent to the hospital at Port Royal, one from an accident, the other from general debility.\*

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\* “ I had a great objection to sending patients to the Hospital at Port-Royal, from the air at sea being far preferable in the West Indies for fever-patients. The mortality at the hospital is often very great, and many other causes prevent men from returning to their ships again. Captain Freemantle was so sensible of this, that he would not allow a man to be sent on shore, except in cases of the most urgent necessity, knowing the great loss to the service that good men are during the season of war. If proper diet is allowed by government, their recovery is more rapid at sea, and  
taking

“ The fever broke out first at Port Royal, as I have already mentioned, and we carried several cases to sea with us, on a cruise to the island of St. Domingo, on which we were out six or seven weeks; when we repaired to Port Royal to refit and refresh for a few days, and again returned to our cruising ground. In these successive cruises, our whole time was employed. We had a great deal of calms, with heavy rains, at intervals, off St. Domingo, and at this time the mortality was understood to be very great among the French troops on shore. While at sea, we were often for several weeks together, not only without fresh vegetables, but without fresh animal food, and without even a single glass of lime-juice, to correct the scorbutic tendency in the men. Many of my patients in fever had ulcers in their legs and feet, which had assumed a scorbutic appearance, from the want of those articles. In patients under these circumstances, the cold affusion was an incalculable blessing. It acted like magic. It was generally used in the evening, and scarcely ever failed to produce a gentle perspiration,

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taking care of them when ill on ship-board, makes them more attached to the service. Dr. Trotter has very justly remarked the great loss the service sustained, when the hospital-ship was discontinued in the channel fleet.”

tion, and refreshing sleep, removing the symptoms of fever, and relieving the depression of spirits and anxiety of mind. A saline cathartic, such as I have already mentioned, completed the cure. By these means, we generally got clear of fever while at sea ; but it broke out again on our return to Port Royal, because there the men were often on shore, exposed to the heat of the sun, on watering and dock-yard duty ; and besides in harbour, discipline could not be so easily preserved, or drunkenness prevented.

“ I was soon so much convinced of the great advantage of using the cold affusion early, that I made a point of seeing immediately any man that complained ; and I gave positive directions to my mates, whenever I was out of the ship, to use the same vigilance, and to apply the affusion without delay. And I always kept one of the mates in the sick birth, during the night, to watch the exacerbations of heat, and where they appeared, to take the patient out of bed directly, and pour the salt water over him.

“ At first, my patients were startled with the proposal of this novel remedy ; but after a little experience of its effects, they submitted to it cheerfully, and were even anxious to use it. As  
soon



soon as the fever went off, I gave the bark infusion or decoction, with a light nutritive diet, and in some cases, a little good wine and porter from the ward-room mess.

“ I leave you to judge what direful effects the lancet must have had, employed on such patients as I have described. In those ships where venesection was used, the mortality was great. But the more general practice, both in ship and on shore, was to trust chiefly to calomel, and to bring on salivation as speedily as possible. Of this medicine, as an auxiliary, I have the highest opinion. I generally used it as a cathartic, as I have already mentioned, and in some cases brought on salivation. But even in these instances, I never hesitated to use the cold affusion on the febrile heat recurring, and I never saw any injury from this practice.

“ I never had recourse to blood-letting in this fever, although I was incited to use it, both by precept and example. I am a decided enemy to this practice in the fevers of the West Indies, and of other warm climates, both from reasoning and observation. It may perhaps be sometimes used with officers just arrived, of full habits, and who live freely. But it will not do with sailors,  
and

and especially with those who are impaired by service, or by the climate.\*

“ Neither did I encourage the use of emetics, which must ever, I think, be attended with dangerous consequences in this fever, notwithstanding, that in one of the medical journals, a practitioner of Jamaica mentions his giving a solution of the tartarum antimoniale to stop vomiting ! In a case on board the Ganges, in which

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\* “ I served in the East Indies five years, (from 1793 to 1798) on board his Majesty’s ship *Heroine*, commanded by the Hon. Captain Gardner, and the Hon. Captain Murray, and did not use the lancet twelve times in that period of years, except in cases of accident.

“ When the lancet was used, it was chiefly in the incipient state of inflammation of the liver, in new comers. Lord Hobart came home passenger in the *Heroine*—in our passage from Madras to Spithead, we did not lose a single man, and there was only one man sent to the hospital on our arrival, in the last stage of a liver affection. I contracted a disease of the liver in the East Indies, which appeared again in the West Indies, and obliged me to leave the Ganges, and come home a passenger. Dr. Blane, late Commissioner of sick and hurt, is no stranger to my practice in the East Indies ; nor is the ingenious Dr. Clarke of Newcastle, who has made the best practical remarks on the diseases of that climate ; remarks which may be depended on.”

which one of my mates gave this medicine, it brought on such violent retchings, cold sweats, and languid pulse, as alarmed me greatly. A large dose of tincture of opium, in Madeira wine, stopped these symptoms.

“ The fever which prevailed on board the Ganges, was not confined to the sailors; it extended to the officers. Mr. George Allcot and Mr. William Carter had it. This last had three different attacks of the fever, and every time he used the cold affusion. I have not the least doubt that he was saved by it, and that nothing else would have saved him. In the absence of the surgeon of the St. George, I was sent for on board that ship, to attend Mr. Yule. As usual, I prescribed the cold affusion, and with the usual happy effects. Captain Lobb, who now commands the Isis, a man of superior talents in his profession, then commanded the St. George. He was much pleased with the practice, and mentioned that he had known one surgeon of the navy before, who had adopted it, and with the greatest success.

“ If you ask whether this was the yellow fever of the West Indies, I would answer that it was, though under the practice I have described, the yellow tinge of the skin seldom appeared.

By



By whatever name it may go, it was no doubt the same fever that spread such destruction through our naval and military service in the West Indies last war. I did not consider it as contagious. There was little chilliness perceptible in this fever—the remissions, if any, were very indistinct. The patients complained of a burning heat, almost from the first.

“ While we lay at Port Royal, a merchantman came down from Kingston, and our purser, Mr. John Allcot, went on board of her to buy some coals. When he returned, he informed me that almost all her men were down in fever, and entreated me to go to their assistance. I found that she had already lost in this fever ten of her seamen and two mates; four men were then dangerously ill of it. They were in a very dirty state; the symptoms were, a hot burning skin, flushed face, red suffusion of the eyes, rapid pulse, anxiety, restlessness, and delirium. I immediately put in practice the cold affusion with them all, and with immediate and striking benefit; I directed it to be repeated from time to time, as the heat might require it. I also sent each of them a dose of calomel and antimonial powder, to be taken next morning. The master of the ship, who had been himself ill of this fever, and with difficulty recovered, was wonderfully

fully struck with this bold practice, and with its obvious good effects. The next day his steward being taken ill of the fever, he himself put him under the cold affusion, and sent to me for the medicine the others had taken. I visited the ship in the evening, and found the steward quite cool and comfortable, and so far recovered from his alarm, which had been great, that he said he would attend his duty next day. All the others were doing well.

“ From the extraordinary success of my practice, I considered it as a duty incumbent on me to publish an account of it, and I accordingly sent one to the Kingston Diary, of July the 25th, 1802, referring to your book, as the authority from which it was derived. Of this I have already sent you a copy. I hope, but am not sure, that it was published, as I failed immediately after sending it. I also made my success known to all my medical friends. I imagine the practice is scarcely known at Kingston, as a medical man of considerable reputation there, wondered at my temerity, and was astonished at my success. The 2d battalion of the 60th regiment, stationed at Upper Park camp, lost a number of men from fever; they were treated by mercury. On mentioning the success of my practice with the cold affusion to the surgeon, he regretted the  
want

want of a liberal supply of water, to put it in practice, the regiment being supplied by contract from Rock-port, some miles off. On my passage home in his Majesty's ship the Decade, the cold affusion was tried in all the fever cases that occurred, and with similar success to what I have already mentioned.

“ In a short time, it will, I think, have as many advocates as the cow-pox.

“ I am, Sir,

“ Your very obedient and faithful servant,

(Signed)

“ L. F. NAGLE.”

It would be to no purpose to comment on this most important narrative. The documents for the extraordinary exemption from mortality on board the Ganges, are the journals of Mr. Nagle, in the possession of the board of sick and hurt. The means of this exemption are here detailed at large to the world. A comparison of the diseases and deaths on board the Ganges, with those of the other ships on the same station and service during the same period, may be easily made by the board, and the inference, it is presumed, must be irresistible. I shall only add, that the water employed for affusion on this occasion,  
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being that of the sea, within the tropics, the temperature of which varies from  $75^{\circ}$  to  $79^{\circ}$ , it is probable, but not certain, that water of this temperature would be sufficiently cold for the same purpose in any latitude. But to produce the desired effect with water of this heat, more frequent affusions would in all likelihood be required. The only rule observed by Mr. Nagle in this respect, was to repeat the affusions whenever the heat and restlessness of the patient indicated their use.

I might here close the evidence in favour of this practice in fevers on ship-board, but the importance of the subject must plead my apology for offering one other narrative, which differs in some particulars from those already given. The authorities hitherto given, have been countrymen of our own, engaged in service on the seas of the North of Europe, or of the West-Indies; the following statement, is from a foreigner exercising his profession in the Mediterranean sea, or the contiguous parts of the Atlantic ocean. I must preface it by a few remarks.

In the beginning of last March, I received a letter from Dr. Baeta of Lisbon, dated Feb. 2d, 1803, mentioning, that though a stranger, he had thought it incumbent upon him to inform

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me of the success which had attended the practice of cold affusion, during the summers of 1801 and 1802, in such cases of the fevers of that city, as it had been employed in; the particulars of which correspond precisely with the general reports on this subject. "In forty cases of fever," says Dr. Baeta, "which fell under my care, the general symptoms were; pulse from 110 to 130, and sometimes even to 140, in the minute; tongue dry and foul; thirst; skin commonly dry; heat of the body generally above  $100^{\circ}$  of Fah<sup>t</sup>. sometimes  $103^{\circ}$ , and in three cases  $105^{\circ}$ ; high-coloured urine; in some cases petechiæ, also coma, and delirium, with watchfulness and restlessness."

"In the case of a patient, whose symptoms on the 4th day of fever, were; delirium; pulse 130, and small; tongue dry; skin dry; heat  $104^{\circ}$ ; restlessness and watchfulness: the cold affusion was employed on the 13th July, 1802; one hour after, the pulse was 108, and a little more strong; the heat  $99^{\circ}$ , with a gentle diaphoresis on the surface; the delirium had disappeared, and the patient felt light and comfortable. On the following day, continuing better, he took some bark and wine, and recovered completely in five days." This may serve as a specimen of Dr. Baeta's success. In communi-  
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cating it to me, he mentioned, that a friend of his had employed the same remedy on a much larger scale, in a fever on board the Portuguese fleet, the particulars of which he offered to procure me. I accepted this obliging offer, in consequence of which, I received the following communication from Dr. Bernardino Antonio Gomez, physician of the Portuguese fleet, which my limits oblige me in some measure to abridge :

*Lisbon, 15th June, 1803.*

“ Sir,

“ As my friend Dr. Baeta, informed you that I had made use of the water of the sea, in the treatment of infectious fever; and as you expressed a desire to know the result, I present you with an account of it, to which indeed you are entitled, since it was from you, through the medium of your estimable work, the *Medical Reports on the effects of Water*, that I learnt the use and efficacy of that remedy; a remedy, which, when the dread which its novelty and singularity excite shall subside, will become as general in practice, as salutary in its effects, and which will render the names of Wright and Currie celebrated and revered; the first as its discoverer; the last as having regulated its ap-



plication, extended its use, and rendered its utility incontrovertible.\*

“ In the beginning of January, 1802, a Portuguese squadron sailed from Lisbon, consisting of three frigates and three brigs, to cruize in the Straits of Gibraltar, and check the incursions of the Algerines into the Atlantic. Two months afterwards it was joined by a ship of the line.

“ From the time of its arrival in the Straits, a fever began to spread throughout the whole squadron, and prevailed to such a degree, that about the middle of March, one of the frigates and a brig returned to Lisbon, with two hundred ill of it on board; and in the beginning of June, when I was sent to the squadron, the sick amounted to two hundred and twenty, not including those in the Swan frigate, taken through  
scandalous

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\* I feel some difficulty in publishing this high encomium. I may plead, that it being shared with Dr. Wright, I had scarcely a right to suppress it; and that it may serve to convey some notion of the impression made by the practice in question, on this accomplished foreigner, to whom Dr. Wright and myself are, personally, equally unknown. My correspondents will vouch for me, that I have not been forward to publish expressions of this obliging nature, to which I am far from insensible.—J. C.

scandalous negligence by the Algerines, in which alone there were forty ill in bed."

Dr. Gomez observes, " that from the universality of this fever on board the Portuguese fleet, in some of the ships scarcely an individual escaping, while several English and American ships of war at Gibraltar, remained in perfect health, there is no doubt that it was contagious, and though he declines tracing the contagion to its source, there is little question that it originated in the want of cleanliness and ventilation, which without experience, as well as the strictest discipline, are so difficultly preserved on board crowded ships of war.

The fever came on as usual with lassitude and cold rigours, succeeded by severe head-ache, wandering pains over the body, and great heat. The tunica adnata of the eyes was often suffused; in some there was slight ophthalmia, and in others transient symptoms of cynanche. In several instances there were pulmonary affections, constituting what may be called peripneumonia notha; these symptoms of the inflammatory kind did not continue through the disease. There were the other usual symptoms of fever; thirst; nausea; occasional vomiting; white tongue; frequent pulse; the skin dry, and hot to the touch, but in  
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the few cases in which the heat was measured by Dolland's thermometer, it did not exceed  $103^{\circ}$  of Fah<sup>t</sup>. Hæmorrhage from the nostrils often occurred in the early stages, and when moderate, seemed salutary, by relieving the headache; but when profuse was dangerous. The blood drawn in a few cases from the arm, did not exhibit the inflammatory character.

If the fever did not terminate in from four to seven days by a critical sweat, the tongue became dry, black, and tremulous; the pulse feeble, and at times irregular; watchfulness, delirium, and subfultus tendinum came on, with all the usual symptoms of the worst form of typhus. Gangrenous sores appeared on the nates; swellings in the parotid glands, in some during, in others after the fever; and in two instances there appeared buboes in the groin. In short in malignity, this fever seems to have approximated the plague. The favourable termination was either early and sudden by a profuse perspiration, or slow and without apparent crisis. The hæmorrhagies, tumours, &c. were never critical.

Dr. Gomez on a review of the symptoms, which he makes at some length, decides, that this was the typhus gravior, or febris sensitiva inirritata of Dr. Darwin. During the prevalence  
of



these dangerous cases there were milder forms of the disease, in this, as in other respects, the epidemic bearing much resemblance to the plague in the French Egyptian army, as described by Dr. Pugnet.\*

“ Although,” says Dr. Gomez, “ the work of yours which I have already quoted, had convinced me of the utility of the cold affusion in typhus, I did not venture to make use of it immediately on my joining the squadron, for the strangeness of the remedy made me more timid than I usually am with regard to new remedies, though of an active kind.

“ I resolved first to become well acquainted with the fever, and to prepare by degrees the minds of my inexperienced assistants and others, to see without murmuring, a practice so singular and unheard of. I began therefore, by the use of water mixed with vinegar, simply as an ablution; I attested the still greater efficacy of the affusion of sea-water; and pointed out in particular the relief which a patient had received in a dangerous state of fever by merely removing to a cooler place.

“ Having

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\* *Memoire sur les Fievr. pestil. & insid. du Levant*, p. 125, 214, 215.

“ Having by these means made a favourable impression on the bye-standers, I waited only for a proper opportunity to put the affusion in practice. The case of a patient whose pulse was 156, his heat  $103^{\circ}$ , his skin dry, and mouth parched, seemed to afford this opportunity, and I directed three gallons of sea-water to be thrown over him. After drying him and putting him to bed, I found his heat and other symptoms of fever abated, and soon after he went to sleep; but he awoke in a short time, as hot as ever. I therefore ordered him to be put into a tub and washed with sea-water till his skin felt cool, but not long enough to give him a painful sensation of cold, or to make him shiver; after this ablution his pulse fell to 136, and the heat of his surface became natural.

“ The next day neither the heat nor the pulse rose so high as before, and as he then complained of pains of his bowels, and of looseness, which last he had had from the first, though it had not been mentioned to me, I did not repeat the affusion or ablution. His feverish symptoms diminished, but the pains in the bowels and the stools increased, and the evacuations at length became bloody, so that it appeared as if a typhus was transferred into a dysentery. The patient was cured, though he suffered a good deal from  
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the affection of the bowels. In consequence of this case, there might perhaps be added to your contra-indications to the use of cold water in fever, *a tendency to dysentery.\**

“ Although the result of my first trial was not the most fortunate, it proved the power of cold sea water applied externally in diminishing the pulsation of the arteries, the burning heat, and dryness of the mouth; and in procuring sleep; advantages which encouraged me to the free use of the remedy on all proper occasions.

“ This I practised thence-forwards, with such extraordinary success, as produces a sensation in my mind, of regret for not having used it sooner, joined with a singular satisfaction in the consciousness of having been the instrument of bringing into use on board our ships of war, a remedy always at hand, and which possessing almost miraculous virtue against the most frequent and  
terrible

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\* The reader will see, that some of my correspondents have used the cold affusion with success, in cases where diarrhoea or dysentery were present; but my own experience rather serves to confirm the observation of Dr. Gomez. Dr Lind, however, speaks of the cold affusion as a cure for the chronic dysentery of warm climates. *Essay on the health of Seamen*, p. 49.—J. C.



terrible of diseases that affect navigators, may perhaps be denominated the greatest discovery that has been made in the general practice of medicine." Dr. Gomez adds, that it would be unnecessary and tiresome to detail the vast number of cases in which he made use of the external application of sea-water—*The result was, that he speedily subdued this dreadful fever, and restored the health of the fleet.*

In the application of the remedy, Dr. Gomez employed a method somewhat peculiar. "I have mentioned already," he observes, "that in the first trial I made, I conformed to the method of Dr. Wright, which you, Sir, have recommended and adopted—the method of affusion; but I also added, that I soon after employed in the same case, ablution also; and this last method I afterwards employed in most of the cases that occurred. My practice was to place a tub at the foot of the patient's bed, with a little stool in the middle of it, on which he sat down naked. It was filled about nine or ten inches deep with sea-water; one or two assistants dipped sponges in the water, and washed the patient all over, continuing this practice till the surface became cool to the touch, and the skin began to corrugate, but stopping before the patient began to shiver or horror came on."

Dr.

Dr. Gomez gives his reasons for using this method, which are shortly these. That he found by experience, the cooling effects of a single affusion speedily went off, and that though by repeating the affusion, sufficient refrigeration might in the end be produced, yet that this was not effected without trouble, which the other method saved ; while at the same time it was more agreeable, and equally safe and effectual.

“ In your country,” he observes, “ the temperature of sea-water being from  $44^{\circ}$  to  $60^{\circ}$ , it may in the rapid method of affusion carry off the excess of heat and even more ; but in a place, and at a time, when the heat of the air was from  $75^{\circ}$  to  $79^{\circ}$ , and that of the sea-water in a bucket from  $69^{\circ}$  to  $72^{\circ}$ , the effects of a single affusion speedily went off ; still I allow that the affusion when sufficient cold is produced by it, is a method more active and decisive, and on that account preferable in the beginning of fevers, and where the patients are vigorous. But when the progress of the fever has debilitated the patients, and the temperature of the water is much above  $60^{\circ}$ , I think ablution preferable, being more mild and safe, and equally efficacious ” Dr. Gomez considers the action of the remedy, as producing two different effects, the subtraction of the morbid heat, and the interruption

terruption of the febrile associated actions. The first he justly considers as most important, as indeed absolutely essential to the other, since with the return of the morbid heat the febrile actions must return.

The indications of Dr. Gomez, for the use of the ablution or affusion, are the same as those so often laid down in this volume—morbid heat and dryness of the skin, without topical inflammation or dysentery. “Under these conditions,” says he, “I boldly and happily used this remedy at any period of the fever. Occasionally I examined the heat of the patients by Dolland’s thermometer, and found it from  $100^{\circ}$  to  $103^{\circ}$ , but as these examinations exposed me to contagion, through the want of a thermometer properly adapted to the purpose, as they required time, and the number of my patients was very great, I gave up experiments by the thermometer, and trusted to ascertaining the heat by the touch, a method sufficiently exact for directing practice.

“The result of this practice, except in the first trial which I have detailed at length, and in which some inconvenience occurred, was *uniformly advantageous*. By its means I obtained,

“ 1st,



“ 1st, A reduction of the heat of the skin to its natural temperature.

“ 2dly, A grateful sensation all over the frame.

“ 3dly, A diminution in the frequency of the pulse, of from 8 to 20 pulsations in the minute.

“ 4thly, A diminution of the dryness of the mouth, bad taste, and nausea.

“ 5thly, Calm, and refreshing sleep.

“ 6thly, A salutary sweat which terminated the fever.

“ This sweat appeared in some cases immediately after the patient's removal from the bathing tub into bed; in some it took place during the night; in others the day following.

“ In those cases where the fever did not terminate in 24 hours after the bath, the succeeding accessions were always less violent, so that if it was not entirely gone after the second or third bathing, it was so much reduced that I left off the bath, and completed the cure by the cinchona.”

Dr. Gomez also notices as a very general effect

effect of the cold bath, the restoration of the tone of the stomach.

To illustrate these general positions, Dr. Gomez details six cases much at large; they are very satisfactory, but so nearly resemble other cases contained in profusion in this volume, that it is unnecessary to insert them. He infers from these cases, and from his general practice, the inutility and occasional disadvantage of emetics, which in some instances were followed by a burning heat not before experienced. He allows however, that they may be useful in cases where the stomach is loaded with bile, but he deprecates their being given in the advanced stages of fever, merely on the ground of nausea being present, a symptom which he considers as arising from debility, and which in this epidemic was very generally removed by the cold ablutions. Neither is he an advocate for blisters. The combination of catarrhal affections, with the contagious fever, did not prevent the use of the cold ablutions or impair their beneficial effects.

Dr. Gomez gave to his patients a nourishing bland diet; and for drink, mucilaginous liquids, and lemonade, with sometimes an eighth part, and in other cases a fourth part of wine. The quantity of wine used on the whole seems to  
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have been very small, and he gave opium only in particular cases. On the whole, his practice appears to have been in every respect no less judicious than successful.

Dr. Gomez is of opinion, that the cold affusion or ablution may be extended to the exanthemata, and gives in proof of this a case of erysipelas, affecting the face and head, in which it was evidently advantageous. He notices and approves my recommendation of this remedy, in the eruptive fever of small-pox, and of Scarlatina, and offers some strong arguments for making a trial of it in the plague, quoting on this occasion, the cases from Desgenettes, which I have introduced, *p.* 394, *and* 5.

He concludes his detail of the last of his cases of fever in these words ; “ it is remarkable, that when this patient was discharged, the contagious fever was extinct in the squadron, nor was there in the hospital any other patient under fever.”

The narrative of Dr. Gomez, shews that where the morbid heat in fever is not subdued by a single affusion, a more permanent application of the remedy may be resorted to in the form of continued ablution, thus confirming the  
recommendation



recommendation given in *p.* 259, to persons engaged in practice in the torrid zone. Continued ablution or immersion may doubtless be employed where necessary, with safety, due regard being always had to the actual effects on the patient's temperature. It is true, in the practice of Mr. Nagle in the West-Indies, which we have just given, affusion seems to have been as effectual as could be desired in subduing morbid heat, though the water of the sea within the tropics is warmer than in the mediterranean; but some difference will probably be found in this respect, not merely in different cases of fever, but in different epidemics, when the state of the animal heat, the most important of all the symptoms, shall be regularly introduced into the history of febrile diseases.

Here then we close this division of the subject. It must serve to recommend the cold affusion in fever on board of our fleet; that it is not only the best remedy for the sick, but the best means of preventing the progress of infection; with this farther advantage, that it is of all others the most easily applied. If it be compared with the remedies recommended by Dr. Lind, Dr. Blane, and others, its real value will be fairly appreciated.—The science of medicine, hitherto on occasions such as these, comparatively feeble  
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and unavailing, by the adoption of this practice, assumes a higher character, and the fanative powers of nature more than cope in force and rapidity with its destroying powers.

## CHAP. XXV.

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*Some account of the use of the cold affusion on shore, in the warmer climates.*

HAVING in the preceding chapter, stated such information as has reached me, respecting the use of the cold affusion in febrile diseases at sea, I should now give some particulars of its effects in the fevers which have attended our armies on foreign service. My information under this head is however very defective, a circumstance I particularly regret. I have not been favoured with much private information from our military practitioners, and I have to lament, in common with all who are competent to judge on the subject, that the medical history of our military expeditions is not regularly given to the world. This is a duty which might be imposed on the chiefs of the medical staff with propriety and advantage. It would operate as a pledge for their attention ;  
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it would bring their knowledge and talents to the tribunal of the public, and particularly of their own profession ; and it would be a means of preventing ignorance and presumption from intruding, or being intruded into situations, where their effects must be singularly melancholy and disastrous.

It has already been mentioned, (see p. 261) that on the northern shores of the Mediterranean, where the use of the cold bath in fevers was frequent among the ancients ; and the use of cold water as a drink, the prevailing practice, these remedies have fallen into disuse in modern times ; in part probably from the influence of a false theory, and in part from the sudden and fatal effects which must occasionally have occurred, from the exhibition of such powerful remedies, while the principles which ought to regulate their application were unknown. The salutary practice of antiquity, has been revived in that region under happier auspices, by Mr. Dewar, assistant-surgeon of the second or Queen's regiment of foot, as appears by his letter in the 59th number of *the Medical and Physical Journal*, of which the following is an extract.

“ The Second, or Queen's Regiment of Foot, forming part of Sir Ralph Abercrombie's army,

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arrived

arrived from England at Minorca, on the 21st of July, 1800. Being sent to attend a detachment of it on board the *Thïsbe* frigate, and afterwards doing duty with the whole regiment on shore, I had occasion to observe the facts I am now to describe.

“ The men enjoyed good health while on board, with the exception of two or three cases of intermittent fever, which had broke out on the passage, and a cholera morbus, which appeared in the harbour in an alarming form, though with no fatal consequences. But on the 11th of August, two days after they were landed at Mahon, an ardent fever appeared among them, which in a little time made considerable progress.

“ For a whole week, sixteen men, on an average, were taken ill each day. Their complaints, for the most part, came on suddenly, and very often when they were on parade. After slight languor and debility, the patient was all at once seized with violent head-ach, giddiness, pains, and extreme debility, in the lower extremities, rendering him totally unable either to stand or walk. When he was brought to the hospital, we found him labouring under all the symptoms of the most violent pyrexia, increased heat, quick pulse, and urgent thirst. Two or  
three

three of them had very frequently alternations of heat and cold ; but, in all the rest, the preternatural heat of the skin was constant, and the patient's feelings uniformly hot and oppressive. The symptom of which they all most violently complained, was the excruciating head-ach.

“ I shall not trouble you with the observations I made respecting the causes of this fever, or the different remedies I employed, but confine myself to an account of the cold affusion. My opinion of its efficacy was previously fixed, from the perusal of Dr. Currie's valuable Reports, and from some striking cases which I had seen in the Edinburgh Infirmary, under the care of Dr. Gregory. I had the happiness to find that Mr. Wells, then surgeon to the regiment, entertained a favourable opinion of this practice, and that we had an opportunity of accommodating a great proportion of the patients in a regimental hospital under our own care. I presaged the happiest consequences from it among the men ; and seized with avidity the opportunity offered, not of confirming my own belief in its advantages, but of observing such facts as might further elucidate the subject, and afford additional evidence, to convince my medical friends of the high utility of this practice.

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“ In the mode of application, I observed the rules laid down by Dr. Currie, together with such precautions as appeared a priori to be dictated by reason. The patients to whom it was applied, were those whose skin was uniformly hotter than natural, and parched. I never used it where there was much perspiration; but, on the authority of Dr. Currie, I considered a slight moisture of the skin as forming no objection to its use. While the patient laboured in this state under tormenting head-ach, and every symptom of violent fever, I took him out of bed, stripped him quite naked,\* and desiring him to hold back his head, and shut his eyes and mouth, poured a quantity of pump water first over the head, then over the breast and back, then washed the arms and palms of the hands, the thighs, legs, and soles of the feet; when the extremities, formerly hot, now became cooler. The heat generally returned about the region of the heart; while, in the head, it continued during the first affusion with little abatement. I therefore again washed the head and breast, and so on alternately, till the whole surface became much cooler than before. After this the patient was laid in bed. If in the course of eight

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\* “ When I had occasion to apply it to females, their delicacy was saved by allowing them to retain their shift, which was changed immediately after the operation.”

or ten minutes, the heat returned with equal or nearly equal intensity, he was taken out, and the operation repeated. The head-ach being the most obstinate symptom, and the last to yield to the cold affusion, the head was ordered to be shaved, and kept constantly cool, with a fold of linen laid lightly on, and dipped in water or brandy. Next day, whatever comparative relief the patient might experience, if any considerable febrile heat remained, the operation was repeated. In this application, I conceive it to be of great importance to begin with the head. The head-ach is attended with an external heat much greater in the head than over the rest of the body, indicating a peculiar force of increased action in that part of the system. To begin therefore with cooling the head, tends to restore uniformity of action through the system. The same circumstance renders it necessary to keep the head cool during the whole course of the disease.

“ The effect of the cold affusion thus applied, was an immediate relief from the head-ach, from the heat of the skin, and all the symptoms of pyrexia. In every case the rapidity of the pulse was diminished, and the patient always felt immediate comfort. In many cases, after ten minutes, a gentle perspiration broke out over the body, which still-further promoted the cure. Next day,



day, if the febrile symptoms returned, they were always milder, and a second application of the remedy greatly diminished them. The head-ach continued for some time after the other symptoms went off, but by the perpetual use of cooling applications it gradually declined, (seldom requiring the application of a blister) and left the patient with no vestige of fever, except a degree of debility. In most cases a yellow suffusion appeared over the surface in the latter stages of the disease, but it gradually went off, and seemed to require no peculiarity of treatment. As medical men, in adopting a new remedy, are often too zealous for its indiscriminate use, and those authors who treat on the subject might be suspected of overlooking some of the occasional bad consequences of their practice, I made it my business to attend to the varieties of the phenomena, and to observe whether or not, in any case, this application was ineffectual or seemed hazardous; but I could find no instance of this kind. Those patients who had previously a slight moisture on the skin were benefited as well as those whose skin was parched. Some shuddered and started when the water was applied, but this unpleasant sensation was very momentary, though I confess, in observing this, I would use the precaution of applying the water rather more gradually, lest an excessive shock should overpower the system in this state of febrile sensibility.



sensibility. The only patient in the regiment to whom the fever proved fatal, was an officer, whose obstinate disposition resisted the application of every powerful remedy, and in whom indeed the disease assumed a different type, from his being subject to a constitutional gloominess of mind, increased at that time by misfortune. I attribute the general efficacy of the cold affusion, on this occasion, in a great measure to its early application.

“ A similar fever was very prevalent among the natives of the island, but still more so among the British troops, where it broke out in each regiment at a different time. From any information I could collect, the cold affusion seemed to be unknown to the physicians of the island, nor could I even find any instance in which it was employed in our military hospitals. Some of my friends advised me against its use, from the unpleasant speculations to which its novelty might give rise. One gentleman, whom I in vain endeavoured to prevail on to employ it, told me afterwards, that he had, notwithstanding, kept the heads of his patients cool in the same manner as I had done, and found it invariably serviceable for alleviating the head-ach. In many patients in the island the fever was attended with high delirium on the second or third day. None on whom the cold affusion

fusion was used had any delirium worthy of notice. Some of them complained of giddiness in the erect posture, and their minds were observed to waver a little during the night. From this I concluded that a strong tendency to delirium had existed, but was checked by the same remedy which removed the other symptoms. In many the fever was evidently cut short at once, and in all of them I had reason to think that its course was rendered much milder. The emaciation which appeared among the convalescents was not to be compared to that which generally takes place in fevers so violent. The disease, under this treatment, proved much less formidable than in the ships in the harbour, and in other regiments on shore, where its fatality in some instances spread no small consternation.

“ Knowing the present spirit of enterprise which prevails in the medical world, I expected on my return to this country in 1802, that the cold affusion must be universally employed, and was rather mortified to find, that though no facts were brought forward to its discredit, many medical men seemed very unwilling to employ it. It is rather singular, that while new articles, formerly reputed poisonous, are daily introduced into the *Materia Medica*, and experiments are made with them not only without scruple, but  
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with zeal, the affusion of cold water in fever, a practice frequent among the ancients, and employed with advantage by some rude nations of modern times, should be considered as too extraordinary in its nature to receive a trial."

*Edinburgh, Nov. 14, 1803.*

It is to be regretted, that the practice of Mr. Dewar was not generally known and imitated in the army of Sir Ralph Abercrombie, a body of men singularly precious to their country.

The use of cold water as a drink in fevers, we know to have been long the practice of the native Egyptians,\* and if we may give credit to Savary, the external, as well as the internal use of this remedy is common among them, even in our own days. He observes, in his *Letters on Egypt*, p. 242, "that if heat were the source of the disorders of that country, the *Said* would be uninhabitable. The burning fever (the caufus of the Greeks) is the only one it seems to give rise to, and to which the inhabitants are subject. They soon get rid of it by regimen, drinking a great deal of water, and bathing in the river."

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\* See Alpinus, lib. ii. cap. 15.



In page 225 of the same work, he gives the case of a master of a ship, a man of credit, as related by himself, who having taken some sailors on board affected by the plague, at Constantino-ple, caught the infection. “ I felt,” says the master of the ship, “ an excessive heat, which  
 “ made my blood boil, my head was soon at-  
 “ tacked, and I perceived that I had but a few  
 “ moments to live. I employed the little judg-  
 “ ment I had left to make an experiment. I  
 “ stripped myself quite naked, and laid myself  
 “ for the remainder of the night on the deck :  
 “ the copious dew that fell, pierced me to the  
 “ very bones ; in a few hours it rendered my res-  
 “ piration more free, and my head composed.  
 “ The agitation of my blood was calmed, and  
 “ after bathing myself in sea-water, I recovered.”

In a former part of this volume, (p. 396) I have supposed, that the use of cold water externally, which was unknown to the French army in Egypt, was equally unknown or neglected in our own army there. By a communication from James M'Gregor, Esq. superintendant-surgeon to that part of our army, which landed in Egypt from India, in 1801, I find my supposition was not perfectly correct.

“ In the pest-houses of the Indian army,”  
 says

says he, “ we were at first very unsuccessful, and a trial was given to a variety of modes of practice. I find on an examination of the reports, that bathing with a solution of nitric acid, and sponging the surface with vinegar and water, and lemon-juice and water, were attended with the best effects.”

The history that follows supports the narrative of Savary, and very exactly resembles that quoted in p. 394, from M. Deigenettes.

“ About the middle of October, 1801, a Hindoo, attached to the commissary of cattle, being seized by the plague, was by his surgeon conducted to the pest-house of Rosetta, but on the evening of the same day made his escape, and though fired at by the centinel, got clear off. We heard no more of him for nearly four weeks, when he was found concealed among the reeds on the banks of the Nile, near Boulak, from whence he was sent down to the army then encamped near Rosetta. On his arrival, I inspected him along with his surgeon, Mr. Guild ; he was free from bubo and every other symptom of fever or plague. He must have lived chiefly on sugar-cane, rice, dates, and what he could steal ; and being fearful of having incurred military punishment by running away from the pest-house,

he

he had concealed himself carefully among the reeds on the banks of the river.

It appears from what Mr. M'Gregor remarks, that the Hindoo could not have made his escape, had he not been in the first stage of the disease, before his strength was broken, for he observes, "that in severe cases of plague, and in the advanced stages, patients were not only incapable of moving themselves, but bore motion of any kind very badly, worse indeed than in any other febrile disease I have witnessed." He adds, "did mental vigour, arising from a determined resolution in the Hindoo to escape from a hospital, *from whence hitherto not one of his countrymen had returned alive, support him in his flight?* However this may be, from what I myself have seen, I have no doubt that his exposure to the open air by day and night, and perhaps his diet and situation in other respects, conduced to his recovery."

"I find I was correct in stating to you, that on the continent, in 1794 and 1795, I often saw cases of typhus do well in the waggons, with whom my mode of treatment had failed in our hospitals. The waggons were commonly farmers' waggons and carts, which were of course open at the top, and the patients therefore exposed to



to the weather. It frequently became my duty to press these waggons, not only for the 88th regiment, but for the sick of the brigade.

“ From my journals while in the West-Indies, I could adduce a number of cases where the cold ablution had the very best effects in the yellow fever, and also in the typhus, when it prevailed much in the island of Jersey, in 1794, and 1798, but the practice is now so generally known, that to multiply instances of its success is unnecessary.

“ One other fact appears on my journal while in Egypt, which now strikes me as remarkable, and may not be unworthy of your notice ; it ought perhaps to be generally known.

“ After crossing the great desert in July, 1801, from a difficulty in procuring carriage, no ardent spirit was issued to the troops in Upper Egypt. At this time there was much *duty of fatigue*, which for want of followers was done by the soldiers themselves ; the other duties were severe upon them ; they were frequently exercised, and much in the sun ; the heat was excessive ; in the soldiers' tents in the middle of the day, the mercury in the thermometer of Fah<sup>t</sup>. stood at  
from

from 114° to 118°, *but at no time was the Indian army so healthy.*"\*

While we are speaking of the countries contiguous to the Mediterranean, it may not be uninteresting to refer to the practice in fever, in the regions that run southwards, and particularly in Persia during the 17th century, as described by Sir John Chardin.†

The Persian physicians he informs us, were then, as they are probably still, religiously disciples of Galen, whom they supposed to have been cotemporary with Jesus Christ, and to have had much

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\* These observations are highly important, and Mr. McGregor's authority is of great weight. His field of experience has been uncommonly extensive, and from the time he entered into the army, in 1789, he has kept regular journals of his practice. He has served in all the quarters of the world, particularly in the East and West-Indies, in Egypt, in the campaigns of 1794 and 5, on the continent, in the islands of Guernsey and Jersey, and in Great Britain.

† Sir John Chardin was a French Protestant refugee, by trade a jeweller, in which character he made a number of journeys into Asia. He was knighted by Charles II. His works were published in 10 vols. 12mo. at Amsterdam, in 1688, in French, and it is from this edition I quote. No traveller stands higher for accuracy and fidelity.

much intercourse with him. For the dysentery, their most common remedy was sour milk, mixed with rice previously boiled in water till it had become quite dry. Bathing was one of their great remedies, especially in fever, as appears from his own remarkable case, which has often been referred to erroneously, and of which the following is an abridgement.

On the 20th of May, 1674, Chardin had reached Bender-Abassi on the Persian Gulph, opposite to the Isle of Ormus, in the 27th degree of north latitude, where he waited for the arrival of a ship from Surat which was to carry him to India. The place, at this season, was very unhealthy, and being himself and most of his people affected by it, he was advised by the physicians not to remain, but to return through Persia by land. He set out on his return accordingly, and on the 23d was seized with a violent attack of fever with delirium, followed by stupor, from which he recovered with difficulty. He had a French surgeon with him who gave him every assistance in his power. The air of the country where he was taken ill, was so bad, that he resolved to be carried forwards in spite of his weakness; and for this purpose eight men were hired, who made a sort of litter or bier, of canes and branches of trees, on which they undertook to

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carry him on their shoulders to the village of Laar. For the two first days of this mode of travelling, the fever continued, with frequent faintings; but on the third day he “had a crisis,” and was relieved.

He arrived at Laar, at day-break on the 27th, for they travelled by night only, on account of the excessive heat. There he obtained the assistance of the governor’s physician, for the fever had returned with violence. The French surgeon and himself thought the case desperate, but the Persian physician treated it as of no consequence. “You have,” said he, gravely, “the fever of Bender, but do not be uneasy, for, with God’s blessing I will relieve you from it this very day.”—Chardin called out, “I am dying of heat.”—“I know it,” said he, “but you shall soon be cooled.” The physician prescribed a great quantity of medicine, “consisting of two emulsions, a cooling confection, and at least a quart of some bitter decoction or infusion, with four bottles of willow-water, and a tea-pot full of ptisan.” These arrived by an apothecary about nine o’clock. Chardin swallowed the medicines with extreme difficulty and reluctance, but without apparent benefit. About ten his heat and thirst increased rapidly, and the apothecary told him he should have been happy to have given him snow-water

to drink, but that snow being scarce, no one could procure any but the governor.

“ As in the extreme heat of my fever,” says Chardin, “ I thought nothing could be so delicious as drinking snow-water, I sent to beg a little snow of the governor, who sent me some about eleven o’clock ; and as I then had the most raging thirst, I drank with more pleasure and avidity than I had ever done in my life. My apothecary was always near me. It was he who administered the liquid to me. He filled a large vase with barley-water and willow-water, put a large lump of snow into it, and when it was half melted, gave me the vessel, and desired me to drink my fill. The pleasure I had in drinking was the greater, because the liquor was very agreeable to the taste, and I took it by the physician’s desire. I was lying on the ground floor of the house, in a cool room, my bed stretched on the ground. Every hour the floor was watered, so that it might be said to have been quite covered with water. But nothing, could allay the heat of my malignant fever, which seemed to be irritated rather than abated by so many cooling remedies. My apothecary then ordered my bed to be taken up, saying it heated me ; and he spread a thin mat in its place, upon which he made me lie down in my shirt, without any other covering, and then made

two men come and fan me. But this was of no avail, the heat continued as oppressive as ever. The apothecary who paid me the most constant attention, then procured two buckets of cold water, and having placed me on a chair, on which I was supported by two men, poured the water over my body by little and little, from the haunches downwards, and then taking a large bottle of rose-water, bathed, in the same manner, my head, face, arms, and breast. I blessed, in my heart, the Persian practice of medicine, which treated sick persons so voluptuously! But our French surgeon, who was always by me, could not contain his indignation. ‘The man is killing you, Sir,’ said he to me in a compassionate tone. ‘What! *bathe* you with cold water in the heat of a malignant fever, with a pint of emulsion, two pints of decoction, and a pound of confection in your belly, with I do not know how many draughts of snow-water. Depend upon it,’ added he, ‘that instead of being very soon without fever, as he has promised you, your death will be the end of the business.’—‘I do not know what will happen,’ answered I, ‘but at any rate I do not feel as if I were about to die, as you suppose.’ Indeed at that moment I felt the heat within me diminish, and my senses return; upon which, my apothecary having felt my pulse, said, ‘Your fever is abating.’ It went off from that time so quickly,



quickly, that by one o'clock in the afternoon I was quite free from it, even in the opinion of the French surgeon. He was quite astonished, and I was transported with joy. After having offered up my devotions to God, as to the first cause of my recovery, I said to the apothecary, that to complete my happiness I must see my physician. He will return, said he, by the time the medicines have operated. I took them, as I have said, at nine in the morning, and I had only since that time experienced a kind of heaviness, which swelled me up very much without griping me, so that I imagined they would have no effect upon me, and that their efficacy was exhausted in my continued sweating. But in a quarter of an hour afterwards a looseness seized me, and lasted two whole hours, without any pain or uneasiness. In the evening the physician came to see me, and I received him as a prophet, or as Esculapius himself. He had learned from the apothecary how I had spent the day, and he ordered me a mess of rice boiled in water, with cinnamon, and the bark of dried pomegranate, pounded together. I had taken no nourishment whatever for five days.

“ On the 28th, when I awoke, I was a little feverish, on which account the physician, when he came to see me, ordered me an emulsion of the *cold seeds*, (melon, cucumber, gourds, and pumpkins)

peons) and a dose of the confection, as the day before, recommending that I should eat raw cucumbers. These remedies were given to me at nine o'clock in the morning, and I did nothing all day but drink, most deliciously, willow-water, and barley-water, cooled with snow, eating raw cucumbers, water-melons, and pears. Verjuice, in considerable quantity, was put into the mess which I took at noon and in the evening, to give it an agreeable taste, and it most wonderfully lessened my thirst.

“ The next morning, the physician having found me still rather feverish, ordered me medicines similar to those I had taken on the 27th. These purged me during the whole day with so much violence, that I had nearly sunk several times under the effects. The night was still worse than the day, as I passed it in pain, with a violent increase of fever. My physician found me in that state, and, as usual, filled me with consolation; for, after having felt my pulse attentively, he told me that he was going to give me some draughts that would carry off what fever remained, and deliver me from it entirely. This certainly took place, but I do not know how he accomplished it. I only know that about nine o'clock in the morning I took two pints of emulsion, with a large dose of confection, as on the  
preceding

preceding days, and half an hour afterwards a julep; after which I fell asleep, and when I awoke in the afternoon, my head was clear, I was without fever, perfectly tranquil, and, as I thought, entirely restored to health.

“ I was so much transported with joy, that I could not find utterance to my feelings, relying on the word of my physician, whom I thought an oracle, that the fever would return no more.

“ On the morning of the 31st he confirmed this opinion, and ordered me to live ten days together on chicken and rice, without any thing else; at the end of which time he said I might live as usual. I asked him how many days it would be before I could pursue my journey? He told me that two more days of repose would be sufficient, and that I might then set out on horseback. He once more ordered me a great dose of emulsions and cordials as before.

“ On the first of June he came to see me for the last time, saying, that I was not any longer in need of his visits; that he had ordered the apothecary to bring me the materials for ten emulsions, and to teach my servant how to prepare them; also, a box of salts, and thirty-five drachms of cooling confection, of which



which I was to take one drachm daily, when I awoke, and to drink after it a glass of water. He said it was to warm and fortify my stomach, which so many emulsions and cooling medicines had considerably weakened."

On the 3d of June, Sir John Chardin proceeded on his journey, and experienced no relapse; and on the 17th he reached Chiraz, in a convalescent state and still weak, but otherwise so well that he left off his medicines.\*

The fever of Sir John Chardin was, no doubt, the bilious remittent fever, so common in the East-Indies, in various parts of Africa and America, and indeed in every part of the earth, where the heat is great, and the soil low and moist, as on the shores of the Persian Gulph. It is worthy of remark, that he improved, while travelling exposed to the open air and the dews of night: his case, in this instance, corroborating the facts mentioned in pages 393, 394, and the reasonings by which they are accounted for.

The manner of applying cold in this case corresponds with the principles I have laid down. The Persian physician attacked the fever at the height

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\* Voyages de M. le Chevalier Chardin, tom. ix. p. 298.

height of the exacerbation ; he had in view the subduing of the morbid heat, and persevered till this was effected. The laxative medicines were no doubt of service in carrying off the morbid contents of the alimentary canal ; but they seem to have been carried to excess on the 29th of May, and to this circumstance the return of fever may be imputed. The bitter medicine was no doubt a decoction or infusion of some vegetable, in its qualities perhaps resembling the cinchona ; and the cooling confection, was certainly the celebrated mithridate, a combination of opium and aromatics, well known over the eastern as well as the western world.

Whether the same treatment of fever as that described by Chardin, has continued in Persia down to the present times, I am not informed. That a similar treatment prevails in the corresponding climate of Africa, appears from the information of Bruce. “ Masuah,” says Bruce, “ is very unwholesome, as indeed is the whole coast of the Red Sea, from Suez to Babelmandel, but more especially between the tropics. Violent fevers, called there *Nedad*, are very prevalent, and generally terminate on the third day in death. If the patient survives till the fifth day, he very often recovers, by drinking water only, and throwing a quantity of cold water over him, even  
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in his bed, where he is permitted to lie without attempting to make him dry, till another deluge adds to the first.”\* The expression used here would lead us to suppose, that the external use of cold water is not resorted to unless the patient survives to the fifth day. If this be the case, some miserable theory, such as the doctrine of concoction, or of lentor in the blood, has probably penetrated among these poor Africans, to persuade them that this remedy is not to be used in the early stages of fever, thus limiting and almost destroying its efficacy, and counteracting the evident indications of nature.

Bruce describes the same fever as prevailing in Abyssinia, especially in all low, marshy grounds. “It is really,” he says, “a malignant tertian. “It always begins with a shivering and head-  
“ach, a heavy eye, and an inclination to vomit.  
“The face assumes a remarkable yellow appearance.” This is doubtless the yellow fever of the West-Indies and America. In Abyssinia as well as Nubia, the internal and external use of cold water seems to be resorted to freely in this fever, and with happy effects. When we speak of the cold water of those *uniformly* sultry regions of the world, we ought not to forget, that the  
water

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\* Bruce's Travels, vol. iii. p. 35.



water even of their springs, being never much colder than the air, is in general equal in heat to that of the Buxton bath, and rises of course to what we denominate *tepid* in this climate. At Masuah, Bruce found the mercury in Fahrenheit's thermometer to range from  $83^{\circ}$  to  $92^{\circ}$ , which gives a still higher medium temperature, (the probable temperature of the springs) and hence he seems justified in his advice to the traveller of Nubia, never to scruple throwing himself into the coldest spring he can find, whatever may be his heat. It is owing to this high temperature of the water, that fatal accidents, from the improper use of cold drink or the cold bath, have seldom or never occurred in those countries, and that the external and internal use of water in fever has continued from age to age.

The success of the external application of cold water in fevers, in the neighbouring countries, and in similar climates, would lead us to expect a corresponding success in the fevers of India. It is not, however, to be concealed, that Mr. M'Grigor, whose authority is so high, and from whose communication respecting the diseases in Egypt, I have quoted so largely, does not confirm this expectation. In the concluding part of that communication he observes, " in the fever  
" most common in India, the cold bath did not  
" succeed

“ succeed with me. On my arrival there I tried it  
 “ in several cases, but it failed. This fever is com-  
 “ monly of the remittent type ; there is much re-  
 “ action ; it seems in most cases to be symptomatic  
 “ of liver affection, and often terminates in hepa-  
 “ titis.” Where fever originates in congestion of  
 the liver, or any of the other viscera, as no doubt it  
 often does, both in the East and West-Indies, its  
 cure cannot be expected from the cold affusion,  
 which may not, even in such cases, be safe. But  
 with every respect for Mr. M’Grigor, I can  
 scarcely doubt, that, in the idiopathic fevers of  
 the East-Indies it will be equally successful as in  
 other regions, due regard being always paid in  
 administering it to the stage of the fever and the  
 temperature of the patient.

“ I remember, says Dr. M’Lean,\* when in the  
 East-Indies, on board the Airly Castle Indiaman,  
 some cases of remittent fever occurred at Diamond  
 harbour, where the company’s ships anchor. Seve-  
 ral perished in spite of every attention. One of the  
 patients, however, in a fit of delirium, jumped out  
 of one of the ports. He was immediately picked  
 up, rubbed dry, and put to bed. His senses re-  
 turned instantly ; his pulse became more regular ;  
 he

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\* Enquiry into the nature and causes of the great mor-  
 tality among the troops at St. Domingo, by Hector M’Lean,  
 M. D. p. 148.

he fell into a profound sleep, and next morning there was a complete remission. He recovered afterwards very speedily.

“ I recollect another instance perfectly similar, on board the Princess Amelia East-Indiaman, in the same place. *The remittent fever had carried off more than half the ship's company*, though every assistance, every comfort the sick could have, was procured by captain Millet, the humane commander of the ship. A seaman of the name of Davies, a very stout, athletic man, in whom the remittent fever had at times alternated with epilepsy, jumped overboard; at the moment he did this an alligator was along-side the ship. He seemed to become at once sensible of his danger\*, and swam with great vigour till he was assisted. I saw him the moment he came on deck; his countenance, which was before grim and unpromising, assumed a more mild and temperate aspect; his pulse, which had been extremely quick and feeble, was now slower and fuller; and his recollection, which had been confused and indistinct, became clear and accurate. I directed him to be washed over with brandy and put to bed. He fell into a profound sleep, which terminated in an universal perspiration, warm and profuse. The consequences

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\* The plunge had restored his intellect.



consequences were a very distinct remission and a speedy recovery.

“ These cases made a strong impression on my mind, and I was determined to take an opportunity of imitating a practice which accident had pointed out. I had not then seen the book of my friend Dr. Jackson. An opportunity was soon furnished. Upwards of thirty men were in my ward at the Diamond harbour hospital, and I commenced dashing buckets of water over them from some height; but whether the water was not sufficiently cool, or the patient being in expectation, did not feel the shock, or that the circumstances were really different, I do not know, but I was by no means so successful as I had hoped from the two cases I have just related.”

The two first cases sufficiently demonstrate the power of the cold-bath in the fever of the East-Indies, when properly applied. The patients did not theorize on the subject, but obeying the instinct of nature, jumped into the sea in the moment of delirium, when the heat and thirst were at the height.\* Supposing the principles which I have laid down for the proper administration of this  
remedy

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\* See p. 497. of this volume.

remedy to be well-founded, the candour of Dr. M'Lean has enabled us to explain why he was comparatively unsuccessful in his use of it on shore. The thirty cases in the hospital must have been in different stages of their progress, but he seems to have employed it in them all indiscriminately, and on a great part of course improperly; or, if he selected his cases, (which there is no reason to suppose) his principle of selection we may safely infer was a bad one, since the following are the directions he lays down for the use of this remedy a few sentences afterwards. "In the very early stage of fever, before it has established its peculiar mode of action; *before the re-action begins*, I think the practice of dashing cold water on the patient may be useful. But after the fever has established its peculiar mode of action; *after the circulation and vessels re-act*, after determinations to particular organs have begun, I hold this practice less certain." There is another stage of fever in which Dr. M'Lean thinks it may be used. "In cases where the sensibility is much impaired, where the recollection is confused, where the system is as it were oppressed, and wants energy to remove the oppression, *where the pulse is feeble and frequent*, in such cases, I hold the dashing of cold water to be one of the best and most powerful remedies." Again, "I am of  
opinion

opinion with Dr. Rush, that it will be most useful where there is greatest diminution of the nervous energy." The language of Dr. M'Lean is not very precise, and the directions are not perhaps perfectly consistent with each other. But it would seem, that he prefers the use of the cold dash in the first or cold stage of fever, before the reaction and febrile heat begin; or in the latter stage, when the vigour is decayed, and the heat sinking; the precise situations in which I deprecate its use. I cannot, therefore, be surprized at the following declaration, which certainly reflects honour on his candour: "We have much to learn from experience on this subject. It must not be concealed, that I have employed it often without success, in cases where I promised myself much from its use." Like his friend Dr. Jackson, Dr. M'Lean ascribes the beneficial influence of this remedy wholly to the effects produced through the medium of sensation, and overlooks the changes which it occasions on the living temperature, by which the febrile motions are so essentially effected.

Dr. Jackson, like Dr. M'Lean, was led to employ the cold bath in fever, by hearing of the sudden and extraordinary recovery which had occurred in the case of some seamen, who, in the delirium of fever, had thrown themselves  
into



into the sea \* at the Havannah. This, he informs us, was communicated to him while he resided in Jamaica, so early as 1774. It does not appear however that he adopted fully this bold practice, either in form or substance. He used the method of affusion, but as it should seem partially, on the head and shoulders only. The effects were salutary; but he observes, that he did not carry the practice so far, that the fever could in any instance be said "to be precipitately extinguished by it," which is indeed a sufficient proof of the limited manner in which the remedy must have been employed.

In 1798, a year after the first edition of this publication, Dr. Jackson gave to the world, his *Outline of the history and cure of fevers*. In the interval between this and his former work, his experience of the remedy in question had extended, and his stile and mode of reasoning had undergone a remarkable alteration. I do not profess always to understand the full import of the new phraseology of Dr. Jackson, which is in a considerable degree founded on opinions peculiar to himself; nor do I, after a diligent comparison of his precepts with his practice,

P p . . . . . tice,

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\* A treatise on the fevers of Jamaica, notes at the end p. 74, by R. Jackson, M. D. 1791.

tice, perceive clearly the principles which regulated him in the use of this powerful remedy. I can however clearly see, that there is little or nothing in common between us in this respect. Instead of employing the cold bath in the first stages, when the strength is nearly entire, and the febrile heat at its height, he premised copious bleedings and other evacuants, by which both must have been previously reduced. Instead of considering the heat of the patient, as the principal circumstance to be regarded in regulating the use of this remedy, he appears to have neglected all considerations of temperature in applying it, except in so far as temperature is connected with sensation; and he has not given us a single thermometrical observation in the whole details of his practice, either in regard to the water employed, the previous heat of the patient, or the change produced by the affusion. The previous or subsequent dryness or moisture of the skin, forms no part of his consideration, and even the very remarkable and almost uniform effect of this remedy, on the pulse, is entirely unnoted.

Nor have I the satisfaction of agreeing with Dr. Jackson, on the manner in which the sensibility of the patient ought to influence us in the use of the cold affusion. He requires a high state of excitement, or of sensibility, on the surface, in

in the application of this remedy, and considers its benefit as wholly dependant on this previous condition; whereas an extreme sensibility to impressions of cold, (which according to my experience, often attends general sensibility of the surface in fevers) deterred me from employing it, even when the actual heat of the patient indicated its use.

It would not become me to pronounce judgment on the very important differences between Dr. Jackson and myself; this must be left to future observers. But from the experience which I have detailed, I cannot be surpris'd at the imperfect success of the remedy in his hands, or that other practitioners in the West Indies, who had adopted it on the same or similar principles, should have afterwards abandoned it.\*

P p 2

Of

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\* In his Remarks on the constitution of the medical department of the British army, published in 1803, Dr. Jackson has again entered on the treatment of fever, and on the use of bathing, as a remedy, at considerable length. On this occasion he mentions my name, as having, by "the popular manner in which I have treated the subject," drawn some notice to the remedy; but claims to himself the merit of having used it for 30 years, and of having communicated it to the world, as it would appear, the first of our countrymen, in



Of this number, was my friend Dr. Ord, of Demerary. I had seen this gentleman in Liverpool, in 1795, then on his way to the West Indies, and had mentioned to him generally, but not, it should

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in 1791. Here, as in his two former publications, Dr. Jackson unaccountably neglects to introduce the name of Dr. Wright, who, from MSS. in my possession, unquestionably used the cold affusion, in small pox, several years before 1774, and who communicated, for publication, his remarkable narrative, with which this work commences, to the Medical Society in London, in 1779. This most important narrative, in consequence of accidental circumstances, was not inserted in the only volume of the Medical Observations and Inquiries, afterwards published by that society, but was recovered, from among their papers in 1786, on Dr. Wright's return to Europe, and given to the world in the widely circulating journal of Dr. Simmons, in that year; *five years, of course, previous to the first publication of Dr. Jackson.*

In the Remarks above referred to, Dr. Jackson defends his doctrines respecting the use of cold bathing, in fevers, with some seeming modifications. He now considers "the presence of heat (i. e. morbid heat) in the patient, however produced, as a general index of forming a judgment of the result," but this obscure expression does not mean, that when present it indicates the use of the remedy, or that its absence prohibits it.

Dr. Jackson occupies several pages in controverting the rules I have laid down for the application of cold to the surface, and in laying down others of his own. Experience must decide between us, and to that I appeal.

If

should seem, with sufficient precision as to the mode of applying it, the great success of the cold bath in fever. Dr. Ord observes in a letter to me, that he did not conceive the principle on which I used it, was to procure the solution of a febrile paroxysm, but to assist with other tonics in restoring strength to the constitution, after the febrile catenation had been removed. “After the embarkation of the troops,” says Dr. Ord, “from that fatal island (Spike Island, near Cork) where so many brave fellows suffered from the inclemency of the weather, and from which were brought the seeds of disease, that carried thousands more to an untimely grave in the West Indies, I made frequent trials of the cold bath, on the principles already mentioned, but little good effects were discernible. Again in this colony (Demerary) when a dreadful fever baffled every other remedy, I made ample trials, with as little effect. A stop was given to every farther trial, by the effects of the cold affusion, on myself in December, 1796. I was attacked by a double tertian, which, having long resisted the free use of the bark, I employed

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If I were inclined to enter into any thing like controversy with this singular reasoner, I should soon find myself involved in that obscurity with which his cabalistical phraseology invests every medical subject on which he treats.

employed the cold affusion very liberally. Syncope was induced, and on my recovery by means of volatiles and frictions, I felt an intense burning heat, which was succeeded by an infinite number of white patches, exhibiting the appearance of urticaria. Great languor and debility supervened, and no sweating stage followed. I recovered from the disease at length by means of a sea-voyage.

“From the perusal of your valuable publication, which the honourable K. H. Mackenzie put into my hands, soon after my recovery, I became sensible, that I had misunderstood the laws by which the affusion ought to have been regulated, and it proves to me (a melancholy reflection) that I have too often seen the fatal effects of its improper application. I have since trod on sure ground, and to a late use of the remedy in my own case, in another attack of fever, I ascribe my preservation.

“Towards the end of July, (1799) being exposed to much fatigue, and also to contagion, I suffered a very severe attack of fever, attended with some unfavourable symptoms; as great irritability of stomach from the first attack; violent headache, with inflamed eyes; excessive restlessness; much general yellowness, with vibices on the breast; and on the fifth day, an almost total deprivation of consciousness. Blood-letting, mercurials,



curials, antimonials, blisters, and bark, both by the mouth and by clyster, had been employed with little effect. On the morning of the 6th day, I was sensible, and conceived my death fast approaching. The heat of my body was insupportable, and I made myself so far understood by my attendants, as to request to be bathed. I was placed in a tub, and four gallons of cold rain water taken out of porous earthen jars, of the temperature of  $74^{\circ}$  (as I have since ascertained) were thrown over my head and shoulders. The most grateful change was produced by the shock. I was moved into bed, and slept about half an hour. Again the heat of my hands and feet distressing me, the affusion was repeated with the most marked success. I recovered my consciousness perfectly, drank half a pint of claret, and fell asleep. I will not tire you with useless repetitions; I resorted to the affusion as often as the heat returned, and with similar effects; I was soon convalescent, and recovered favourably.

“ I am fully persuaded that the cold affusion is one of the happiest remedies ever recommended for fever, at the same time that it is highly grateful to the patient; nor so far as I know, does it stand in the way of any other remedy; for under salivation I employed it in my own person without detriment. I know indeed that it calls into  
action

action the mercurial disease, and that it may be employed with safety, as an auxiliary to that invaluable remedy, mercury.”

The letter of this amiable and accomplished physician, from which I quote, dated Jan. 1800, contains a variety of other important observations, and was accompanied by several other cases in which the cold affusion had been used in fever, with the same happy effects. In these all the particulars requisite for accurate judgment are detailed with the greatest perspicuity, and I am only prevented from inserting them here, by the length to which this work already extends, and the necessity of hastening to a conclusion. The result of the whole is, that in Demerary, as in the other sultry climates of the earth, the cold bath is a most valuable remedy in fevers; that in cases a few days advanced, it requires to be again and again employed, and may be so employed with perfect safety; and that, as in the fevers of such countries, visceral obstructions often attend fevers, sometimes in the relation of cause, sometimes of effect, mercury is frequently required in combination with the cold bath, with which it may be conjoined, contrary to all former theories, but in correspondence to the facts mentioned in the first edition of this work, not merely with impunity, but with the utmost advantage.

These

These conclusions perfectly accord with the opinions of Dr. Chisholm, expressed in the second edition of his *Essay on the malignant Pestilential Fever of the West Indies*,\* already quoted in this work, p. 279 and 295.

Dr. Chisholm has expressed himself on the use of cold bathing in fever with singular candour and liberality.

“When I first began the use of cold bathing in these fevers,” says he, “I conceived that the only periods at which it exhibited its beneficial powers, were the commencement, or rather before the fever is formed, and the low state, when the mercury has had no effect, and when the gangrenous disposition has begun its approaches. While this was my idea, I confess I could not satisfy myself with any reasons why its operative effect should be confined to these periods. I could readily account, indeed, for the advantages derived from

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\* See Dr. Chisholm's *Essay*, second edition, vol. i. p. 457.

See also the whole of his appendix, vol. ii. p. 461. The safety and efficacy of the combination of mercury and the cold bath in fever, are confirmed by the experience of Dr. Chisholm, and Dr. Armstrong, of St. Kitts. For an account of Dr. Armstrong's practice, see vol. i. p. 388-9 of Dr. Chisholm's *Essay*, &c.



from its early exhibition (i. e. before the fever is fairly formed) by supposing the excitement of a new action sufficient to overpower the morbid action before its establishment; and the stimulant powers of cold clearly elucidated the benefits arising from the application of it in the low state. But has not cold a sedative power also? And if it has, why may it not be applied to diminish morbid heat during the first stage, or the inflammatory state? Authority, not experience, led me to avoid the trial; and such reasoning as the following confirmed my apprehension of danger from it. If we suppose that the operative effect of cold is the production of a new action, which in one instance prevents, and in the other resists, that of the remote cause, how are we to expect, from it, the removal of an inflammatory diathesis, which stimuli have already excited? This is specious, but like most reasoning founded on theory, or badly ascertained fact, it is also fallacious. Dr. Currie, of Liverpool, first drew the veil aside, and exhibited the nature and cause of the fallacy. Defective observation and total ignorance relative to animal heat, in a healthy, and in a morbid state, I was convinced with him, were the true causes that cold bathing had hitherto produced but very partial benefit in the West Indies, during the inflammatory stage of fever in general." Dr. Chisholm regrets that this conviction

viction did not come earlier for the regulation of his practice. His experience of the effects of cold bathing, regulated by the principles which I have laid down, he gives in the 7th appendix to his second volume, to which I have already referred. The observations of Dr. Chisholm, were much extended in conversation, when I had the pleasure of meeting him at the house of a friend in the neighbourhood of Liverpool, in the summer of 1803, and of finding, that most of the opinions I had given, as well in regard to the prevention, as the cure of diseases in the warm climates, were remarkably confirmed by the ample experience of this able and accurate observer.

A similar satisfaction I enjoyed in Liverpool, in December, 1802, in the conversation of Dr. Macneill, Inspector-General of the hospitals in Guiana. This gentleman communicated the result of his practice with the cold affusion at Surinam, in 1801; particularly in two cases, those of Mr. Mackenzie, paymaster of the 39th regiment, and of Captain Cameron of the same corps, in which he employed the remedy to a great extent, and with a happy issue. The particulars of these cases I took down in writing, and would certainly have introduced at large here, but for  
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the reasons which have obliged me to omit many other valuable communications. An abridged account I will however give.

Mr. Mackenzie was in the 4th day of fever when Dr. Macneill first saw him, his bowels constipated, his stomach rejecting every thing, and his strength sinking fast. His bowels were opened with calomel, and his stomach composed by laudanum and æther, which also procured him sleep. On the 5th morning he was more composed, and for the convenience of attendance he was carried by water in a covered boat, five or six miles, by which excursion he seemed rather benefited than injured. He now took the bark, with saline effervescing draughts, and a draught of laudanum and æther at night. On the 6th morning he was compleatly restless and delirious, his skin dry and burning, with great thirst, and sense of heat. He continued his saline draughts and lemonade as drink, but threw them up, and at his own instance he drank largely of cold water, that stood by him, which seeming to agree with him, his whole surface was spunged with it and afterwards dried. By these means his heat was much reduced, and his mind composed. He was afterwards, at his own request, frequently spunged all over with cold water during the day and night, and he would not allow himself to be dried, but suffered the moisture



to evaporate, which he said was in a high degree pleasant and cooling. In this wet state he would not allow even the sheet to lie upon him, but stripped off his shirt and lay quite naked, that he might enjoy the breeze from the open windows, which blew over him. The heat of the day might at this time be from  $84^{\circ}$  to  $88^{\circ}$ . In this way the fever was reduced, the delirium and agitation carried off, and the mind rendered calm and composed. His strength was sustained by bark and nutritious diet, his bowels were kept open by calomel and clysters, and æther and laudanum given to render his nights tranquil. As often as the febrile heat returned, cold water was employed internally and externally, as already described, and always with similar effects. In eight or ten days the disease was removed.

The case of Capt. Cameron, is still more remarkable. His fever was again and again removed by the use of the cold drink, and of the cold affusion, which he carried to the length of lying drenched in his wet clothes. But as he refused all medicine and cordial nutriment, the fever returned, in part probably from his continued exposure to the causes which originally produced it. After each succeeding paroxysm his strength diminished sensibly. At length the intermissions became imperfect, delirium occurred, and the most desperate symptoms supervened. He was finally  
saved

saved by the use of mercurial inunction, æther, laudanum, bark, and wine.

“I think,” said Dr. Macneill, “the cold affusion an admirable remedy for subduing the paroxysm of fever, and my experience of the time of using it, as well as of the other cautions, agrees with the rules laid down by you in the *Medical Reports*. But it is necessary to follow up the advantage you obtain, with bark and nourishing diet, otherwise the paroxysm is apt to return, and though subdued again and again, to return as before. I also incline to think, that in many cases the wetting of the whole surface, and allowing it to dry by evaporation, is less fatiguing and more safe, than the cold dash, especially when the patient has been weakened by the climate, or the progress of the disease.”

“I incline to think that the fevers of Guiana are contagious, though the constant ventilation of the habitations, which is enforced by the climate, seldom renders this very striking or obvious. Ablutions of the surface with water will no doubt render the operation of contagion still less.

“The fevers of Guiana are not so violent as those of the windward islands, and do not run their  
course

course so rapidly: the remissions in the first days are more distinct. But if these are not taken advantage of, the fever becomes continued, and terminates generally in eight, nine, or ten days. After apparent convalescence, returns are frequent, unless bark have been used. I have employed the warm bath by immersion, with our soldiers, in the stages when the cold affusion could not be employed. It relieved head-ache, and assisted in opening the skin, but had not the permanent or powerful effects of the cold affusion.

“Against the irritability of the stomach, the best preventive was keeping the bowels open. I wished my patients to have two stools at least a day, and even more seemed of use in some cases. Calomel given in quantity very frequently brought on vomiting, and I did not depend on it as a cathartic without its being combined with jalap, or the cathartic extract. Where I wished for the specific effect of mercury, I preferred employing the ointment by inunction.

“Physicians in the West Indies, have gone from one extreme to another in regard to the bark. Formerly they began with it immediately, without waiting for remissions. And this not succeeding, they often abandoned it entirely and flew to other means. I was attacked with fever myself, but a  
smart



smart cathartic produced a remission, when I threw in the bark largely, which prevented a return. To me it seems an admirable remedy, but it must not be used till the morbid heat is subdued, and the skin opened. Cathartics and the cold affusion produce these happy effects, and then the bark should be thrown in as fast as the stomach will bear it.

“ The same caution should be used as to wine. It should not be employed in the first stages when the febrile heat is great, and the skin dry, but after the heat is in some degree subdued, and the skin opened, it is of great advantage.

“ Neither do I ever give opium in the first stages of fever. It is of the utmost consequence to keep the bowels free, to lessen the heat, and to open the skin, but these objects obtained and ensured, opium is of great use in allaying irritation and procuring sleep. It may also be used with advantage in the paroxysm of fever when the hot stage is declining, and the sweating stage has commenced.

“ I never found it necessary to give more than an ounce of the bark in powder, or even boiled into a decoction, in the twenty-four hours. I generally combined it with rhubarb in the early stages of its use, unless the bowels were open by  
other

other *means*. I was always desirous that my patients should have several stools during the first stages of taking the bark.

“ In Guiana, fevers are most severe on Europeans newly arrived. They are brought on by intemperance, by fatigue under the heat of the sun, and by exposure to the rain, or evening dews, after the body has sustained the burning heat of the day. In short, all debilitating causes predispose to them. The country is low and swampy, the dews of night are very heavy, the exhalations from the rivers, canals, and ditches, very considerable, and loaded with miasmata. Fevers there, generally begin with a rigor, but not always; head-ache, great heat, dry skin, pains across the thighs and the small of the back, and in some cases cramps in the calves of the legs, may be considered as the general symptoms.

“ The water used in Surinam, is excellent. It is rain water collected in cisterns under ground, and suffered to depurate. It is afterwards passed through a filtering stone, and kept in evaporating earthen jars, there manufactured by the Indians, in which it acquires a temperature from eight to ten degrees lower than the atmosphere.\*

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\* These observations I took down from Dr. Macneill, in conversation. They were afterwards revised by him.

These observations of Dr. Macneill on the proper remedies in fevers, accord entirely with my opinions, and I earnestly recommend them to the attention of medical practitioners, in warm climates, and particularly in the torrid zone.

It was also my good fortune to become personally acquainted with Dr. James Robertson, surgeon to the naval hospital at Barbadoes, when on a visit in Liverpool, in the winter of 1799—1800, and to receive several valuable communications from him, after his return to the West Indies, one of which is inserted at large in *p.* 292 of this edition. A letter from him, dated the 16th of March, 1801, contains a valuable dissertation on the fevers of the West Indies, which I regret that I have it not in my power, for the reason already repeatedly mentioned, to give at large. I cannot however refrain from making extracts of such parts of it as more immediately respect that mode of treatment of fever which it is the principal object of this publication to explain and to enforce.

“Till I read your book, and learned the result of your experiments, and the principles on which the effects of the cold affusion were explained, I never had had recourse to it. For soon after  
I came



I came to this island (Barbadoes) in 1793 or 1794, a gentleman lately from Europe had the cold affusion tried upon him *after all other expedients had been resorted to in vain*; but he died during the operation, or shortly after it. I did not see the case, but have no doubt that the powers of life were too much reduced at the time the remedy was tried. The catastrophe made some noise at the time, and put a stop to the practice. It however had been previously resorted to at different times by our practitioners, or others, but always I believe as a last resort. In one case a gentleman of the name of M——e, ill of fever, was despaired of by his physicians. He was yellow all over, and had been delirious for some days. He had incessant vomiting, with hiccup, and petechiæ had spread over his body. In short, his dissolution seemed fast approaching, when General P——, determined to try the following experiment. The sick man was stripped naked, and fresh lime juice poured copiously over his body, frictions being at the same time employed. He was afterwards dried and put to bed. A general sweat broke out, followed by refreshing sleep. He recovered, and is alive at this day. I have not been able to learn the state of the surface as to heat at the time this remedy was tried.” Dr. Robertson observes, that in the use of the cold affusion he has conformed to the directions I have

laid down, of which from experience he gives his decided approbation. “ I am frequently called on board merchant ships,” says he, “ to prescribe for men who are ill of fever, and as it is often inconvenient to send them on shore, I have frequently succeeded in extinguishing fevers in the first instance, by the affusion of cold sea-water on board. The patients are well dried and rubbed after the affusion, and lodged in a dry part of the ship. Two or three pills of calomel, of two grains each, are given at intervals of an hour, and an opiate, with some mild diaphoretic, is exhibited at bed-time. The cold affusion is directed to be repeated, whenever they feel the sensation of burning heat return, with a dry skin, of the application of which simple rule the master or mate is always a competent judge.

“ When patients are received at the naval hospital from ships of war, they are generally bad cases, whatever be the nature of the disease, as by the rules of the service, none are to be sent to the hospital who can be cured on board. Hence it does not often happen, that I receive cases of fever from our ships of war in an early stage of the disease, and the fever-patients sent to the hospital often labour under other affections, which forbid the use of the cold affusion. But every patient in fever, as soon as received, is spunged with vinegar and

and water all over, before he is put to bed, if he feels hot, and the cold affusion is had recourse to afterwards if the case seems to require it.

“ With prisoners of war the case is different. The sick of this description are under my care from the first, and as soon as any in jail appear to be in a feverish state, they are sent to the hospital. A part of the discipline of the hospital has all along been to wash the patients on their first admission, before they put on their hospital-dress. And sometimes I have sent men back to the jail in a few days, without administering any other remedy than this ablution; the change of air, diet, and lodging, no doubt materially tending to arrest the progress of the disease.

“ The cold water used by me in affusion has seldom been below that degree of temperature to which you give the appellation of *cool* ( $74^{\circ}$  or  $75^{\circ}$  of Fah<sup>t</sup>.) and I am apt to believe, that that degree of temperature in this country is equally efficacious with a much lower degree in a cold country; for the sensations of the body are more acute, the fibre is more irritable in this country than in Europe, of which fact I have very recent experience in my own person.

“ The *cool* affusion, to adopt your relative term,



term, may be considered as *cold* in this country, and I consider it to be not only adequate to the desired effects, but more applicable to cases of fever here, at least among natives, and long resident inhabitants, than the absolutely cold affusion; though in certain cases, especially those of new settlers from Europe, this last might perhaps be preferable. I have however found, so far as my experience extends, the medium temperature of our seas and springs sufficient for every purpose.\*

“ And in cases where, from local affections or other circumstances, the cold affusion is not judged expedient, milder modes of the application of cold have been adopted. Such as the sponging with water and vinegar; the *lavatio frigida* of Dr. Wright; frequent bathing of the hands and face in cold water; dipping the face into cold water; chaffing the wrists, hands, neck, and temples, with camphorated vinegar or spirits, and the application of

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\* “ The temperature of the sea-water here (Barbadoes) at and near the shore, is about 77° or 78° in the heat of the day. But if the water be contained in a receptacle, and exposed to the sun, the temperature is sometimes higher. About sun-rise, the coolest time of the day, the sea on the shore is about 72°, which is nearly the heat of deep wells and springs in shady situations.”

of the cold fresh leaves of the sandbox tree, or cephalic vine, about the temples, and rubbing the arms with lemons, or limes, cut transversely.

“ Indeed the salutary effect of calomel, and James’s powder, where the latter is admissible (the state of the stomach, in this country, frequently prohibiting the use of any preparation of antimony) may in a great measure be referred to their cooling effects; for these medicines, by opening the bowels, and increasing perspiration, must tend to prevent the accumulation of morbid heat, as well as by removing congestions, on which the febrile heat depends. And I have never found it expedient to continue the use of either calomel, or antimonials, in fevers, after the skin becomes soft, the tongue moist, and the belly open, unless with a view of preventing, or removing, topical affections of the viscera, which I am confident that bark, either too early or too copiously administered, is apt to give rise to, or to confirm.”

To Dr. Robertson I am also indebted for some communications, made to him by Dr. Davidson, of St. Vincents, of which the following is an abstract :

“ In 1791, and 1792,” says Dr. Robertson,

“ we

“ we had at St. Vincents, a low nervous fever, which evidently seemed to be the offspring of contagion. It began in the small island of Beguia, and it was alleged there to have been brought from Guadalope. One of my patients brought it from Beguia, and died on the 11th day. Soon after, a brother of Dr. French, of St. Vincents, was attacked with fever. The remissions were at first very evident, observing the double tertian type. The usual evacuations being premised, the bark was thrown in, but without any good effect, as it disagreed with the patient's stomach. All his symptoms increased, with delirium, subfultus tendinum, quick low pulse, *dry skin, and great heat.* The cold bath was administered. After drying the surface and putting the patient to bed, a dose of tincture of opium was given in warm wine and water. He got into a profound sleep, with profuse sweating, and next day was in a condition to take the bark. A repetition of the bathing completed the cure.

“ I had three other cases at the same period ; two of which were attended by my lamented and much esteemed friend, Dr. Mackie, of St. Vincents, who despaired of their recovery. But the cold bathing proved successful in them all.”

In



In these cases Dr. Davidson used cold bathing in the advanced stages of the fever. He however mentions, that the heat was still great, and the skin dry, and to these circumstances his success is no doubt to be attributed. In the malignant yellow fever, which raged in St. Vincents, and the neighbouring islands, in 1793, Dr. Davidson changed his plan of administering the remedy, of which a more distinct account is contained in a letter, which he wrote at that time, to Dr. Brown, of Baltimore, than in his letter to Dr. Robertson; and of which, as it is given in an American publication of 1794, we shall therefore avail ourselves.

It appears, that Dr. Davidson, having heard of the great mortality in Philadelphia, in 1793, from the malignant yellow fever, thought it might be useful to communicate his experience of the proper mode of treatment of a similar disease, which had recently occurred in St. Vincents. "I have observed with uneasiness and concern," says Dr. Davidson, to Dr. Brown, "that an epidemical fever, nearly similar to that which we have had in this island, for six months past, has appeared in Philadelphia. The disease, as it occurred with us, attacked with more violence, and proved more fatal, than I ever recollect to have seen in any other instance, during a residence of twenty-two years in the West Indies, and part of that time at St.

St. Lucia, where I had an opportunity of seeing the fever among the troops, and sailors, in all its forms.

“ Early in April, the yellow fever made its appearance, both on shore, and on board the shipping. The young, plethoric, and those lately arrived from a cold climate, were chiefly affected. The inflammatory symptoms ran high. Blood-letting, blisters, and gentle and constant purges, answered at first; but in the farther progress of the disease, the weather still continuing hot, the marks of inflammatory diathesis became less evident, and the pulse sunk on blood-letting. The vomiting did not appear on the first days, and sooner ended in black vomiting. We found it necessary to alter our practice; but I must candidly confess, that ’till I adopted the use of cold bathing, under the circumstances which indicated a typhus type, our endeavours to cure the fever were attended with little success. In the inflammatory state the disease was more at command, but in the other, the irritability of the stomach was such that we could not use tonics. Neither bark, wine, nor opium, could be retained. Upon a general review of the ill success which attended the practice of the medical gentlemen in this island, as well as in Grenada, and Tobago, I was inclined to try the effects of cold bathing, which  
I had

I had used with success in the advanced stages of remittent fever. At first I tried the effects of cold bathing in the advanced stages of this fever also, but without success; but as every other plan equally failed, I began with the *cold bathing in the commencement*. Warm tamarind tea, or cream of tartar and manna beverage, was given immediately after the application of the cold bath, to excite sweating, and to open the body, if this last effect were not already produced by clyster; and the instant that a sweat appeared, bark, mixed with the beverage, was given in as large quantities as the stomach would retain, without paying any attention to the fever, or state of the patient's pulse. When, however, the stomach rejected the bark, and there appeared to be an increase of headache, heat, and other symptoms of febrile affection, I had again recourse to the cold bathing alone, which was commonly repeated evening and mornings, 'till the patient was out of danger. *I am happy to announce, that this mode of treatment has been attended with the utmost success.* The cold bathing seemed to take off the determination to the brain, to remove irritability, and to determine to the surface, for in every case, a plentiful sweat was excited."\*

Dr.

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\* This letter of Dr. Davidson, to Dr. Brown, was by him sent



Dr. Davidson's narrative has not all the precision that could be wished, yet it is sufficiently clear in the points most essential, and particularly in this, that in a fever of the most fatal nature, where all the established modes of practice failed, and where the cold bath itself equally failed when used in the latter stages, it was attended with the *utmost success when resorted to in the commencement of the disease, and duly repeated as the fever returned.*

Unfortunately cold bathing had been already proposed, as a remedy for the fever of Philadelphia, in the beginning of the epidemic of 1793,  
by

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sent to Dr. Cumming, of Philadelphia, by whom it was communicated to Dr. William Currie, of the same city, who has published it in a note to his "Impartial Review," of Dr. Rush's "account of the bilious remitting yellow fever, in Philadelphia, in the year 1793." The letter of Dr. Davidson, appears to be given chiefly with the view of showing the existence of a similar disease in the West Indies to what appeared in Philadelphia, and the probability therefore of this last being imported. Dr. Currie makes no remarks on the practice of Dr. Davidson, nor does it appear to have been imitated either by him, Dr. Cumming, or Dr. Brown.

by an accomplished physician from the West Indies, Dr. Edward Stevens, of St. Croix.\*

Dr. Stevens recommended the use of the cold bath every morning, in the state of languor and lassitude, which ushers in the disease, with a free use of Madeira wine, a gentle opiate at night, quiet, and rest.

“When the disorder has gained ground,” says Dr. Stevens, “and become violent, and when the danger is imminent, the most unremitting exertions should be made by the physician, to mitigate the symptoms. The nausea, and vomiting may be relieved by an infusion of chamomile flowers, given frequently, until the stomach is sufficiently emptied of all crude matter; small doses of a cordial mixture, composed of the oil of peppermint, and compound spirits of lavender, may then be taken until the fever abates. If, notwithstanding, the irritability of the stomach should still continue, recourse must be immediately had to the cold bath, which

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\* The same who published a very ingenious inaugural dissertation at Edinburgh, in 1777, “*De alimentorum concoctione*,” in which are contained some curious original experiments, made on the person who swallowed stones for his livelihood.

which must be used every two hours, or oftener, if the urgency of the symptoms should require it. After each immersion, a glass of cold Madeira, or a little brandy, burnt with cinnamon, may be administered." Dr. Stevens goes on to order injections of bark and laudanum, and fomentations of flannel wrung out of spirits of wine. As soon as the state of the stomach will admit, he proposes bark, wine, and nourishing food, dissuading from purging, blood-letting, and every part of what is called the antiphlogistic treatment. "Upon the whole" says Dr. Stevens, "I may sum up this hasty outline, by inculcating the use of the tonic plan in its fullest extent, and by warning against the ill consequences of debilitating applications, or profuse evacuations in any period of the disease: the cold bath, bark, and wine, a spacious well ventilated room, frequent change of bed and body linen, and attention to rest and quiet, will, in most cases, prove successful, and strip this formidable disease of its malignity, its terror, and its danger."\* It appears that the plan of treatment proposed by Dr. Stevens, was in some instances successful. It was strongly

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\* See Dr. Stevens's letter to the president of the college of physicians, of Philadelphia, dated September 16, 1793, inserted in Dr. Rush's "Account of the bilious remitting fever, in Philadelphia, in 1793," p. 223.



strongly recommended to the public, in a printed letter, from the celebrated Mr. Hamilton, then secretary to the treasury, he having experienced its benefits in his own person.\* The plan of Dr. Stevens, was at first adopted by Dr. Rush. "I began," says he, "the use of Dr. Stevens's remedies the next day after my interview with him, with great confidence of success. I prescribed bark in large quantities; in one case I ordered it to be injected into the bowels every four hours. I directed buckets full of cold water to be thrown upon my patients. The bark was offensive to the stomach, or rejected by it in every case in which I prescribed it. The cold bath was grateful, and produced relief in several instances, by inducing a moisture on the skin. For a while I had hopes of benefit to my patients, but in a few days, I was distressed to find that these remedies were not more effectual than those I had previously used. Three out of four of my patients died, to whom the cold bath was administered in addition to the tonic remedies before mentioned."† In consequence of this bad success, Dr. Rush was induced to abandon the plan of treatment, of Dr. Stevens, and to adopt an opposite method;—the free use of evacuants, particularly

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\* See Dr. Rush's "Account," &c p. 214.

† See Dr. Rush's "Account," &c. p. 195-6.

larly bleeding, and purging, to which he has given the name of the depleting system. On the propriety of this system, I do not enter, being most unwilling to touch on the controversies in which it has been involved; but I may be permitted to say, that the cold bath, used according to the directions of Dr. Stevens, could not, on the principles I have laid down, be attended with success, except, under the accidental occurrence of circumstances which were not in his contemplation, and which his precepts would lead those who employed it, rather to avoid than to embrace. Instead of recommending the cold bath in the first attack of morbid heat, Dr. Stevens does not seem to advise it as a remedy, 'till the disease has "gained ground," and the "danger is imminent." If nausea, and vomiting, can be relieved by no other means, recourse must be had to the cold bath, which is to be used *every two hours, or oftener, if the necessity of the symptoms* (that is, of the nausea, and vomiting) *should require it.* One can suppose, that in certain vigorous constitutions, even such an application of this remedy might be successful, but generally speaking, it must be expected to be hazardous in the extreme. Its comparative success, and safety, in the hand of Dr. Stevens, in the fevers of St. Croix, we must ascribe to their being of a milder nature, and perhaps in part,

part, to the water of the springs on the shores of that island, being twenty degrees warmer than in the wells of Philadelphia. In a subsequent publication of Dr. Rush, we learn, that the use of the cold bath was afterwards abandoned by Dr. Stevens himself. "Dr. Stevens," says Dr. Rush, "recommended bark, wine, and the cold bath, for the cure of the yellow fever of 1793, because he had seen these remedies most effectual in the yellow fever of St. Croix, but he laid all these remedies aside, and chiefly relied on a salivation, in the cure of the fever, of 1797, of Philadelphia."\*

Dr. Rush, however, in the bilious yellow fever of 1794, used partial applications of cold water to the surface of the body, and also employed it in the way of clyster, with good effects ;† but he did not resort to the general affusion, or push the remedy to the extent necessary to reap its full advantages. On other occasions it has been used in the destructive fever which has prevailed in the great cities of America, particularly by Dr. Baylis

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\* Second address to the citizens of Philadelphia, *p.* 29, by B. Rush, M. D. 1799.

† An account of the bilious yellow fever in 1794, p. 91.  
by B. Rush, M. D.



of New York; but so far as I know, similar observations are applicable to the mode of using it in such instances, as to that laid down by Dr. Stevens. It has in general been used as a stimulant and tonic, in the advanced stage of the disease; no regard has been paid to the patient's heat; nor do I know that a single thermometrical observation has been made on this dreadful fever, by any of the physicians of America. In my view of the subject, we are still uninformed in regard to the most important particular connected with the history of the disease.

The first edition of the Medical Reports had no influence that I know of, on the mode of practice in Philadelphia, or New York, in the fatal epidemic of 1798. The practice I had recommended met indeed the approbation of Dr. Eustis, of Boston;\* and the second edition of the work was abridged, and recommended to public notice, by a gentleman, in the district of Maine, formerly a member of the British House of Commons.† But in the middle states, where the mortality has chiefly prevailed, other modes of practice have engrossed

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\* See his letter, dated November 21, 1798, p. 18, of the first number of the Medical and Physical Journal.

† Mr. B. Vaughan.

grossed the general attention. The Medical Reports were announced, but neither reviewed nor analyzed, in the Medical Repository of New York. From a recent number of this valuable publication, I however see with pleasure, that the practice I have recommended, begins to receive some share of attention. The following is the extract of a letter from Dr. Selden, and Dr. Whitehead, of Norfolk, in Virginia, to Dr. Miller, of New York, dated July 15th, 1802, and published in the 6th volume of that Journal. After a general view of the causes, and of the symptoms of the yellow fever at Norfolk, in 1801, they proceed as follows.

“The plan of treatment proposed this year was, in many respects, similar to that adopted in 1800, of which we have formerly given some account. The lancet, however, was more sparingly employed; calomel, in all cases, was liberally exhibited, both with a view to produce, in the commencement, a full and speedy evacuation, and afterwards also, in such forms as have been found to bring on most readily a salivation, which, in every instance, with us, as has been often noticed by others, was followed by the recovery of our patient. Where topical affections occurred, we had recourse to local remedies. Cupping, and venesection, when early employed, afforded frequently great relief. Neither theory nor experi-

ence warranted the early exhibition of the bark ; we always deferred it till some change in the febrile symptoms began to appear, and the irritability of the stomach had abated. But under every form of treatment, numbers fell victims to the disease. In this juncture, being desirous of making every effort, we had recourse to a remedy we had last year tried in a few cases with some benefit, and now found attended, as far as it was carried, with unequivocal success. This was the liberal affusion of cold water, not on the plan prescribed by some of the writers of the West Indies, but in a mode similar to that recommended by Dr. Currie of Liverpool.

“ The first trials were made on young robust British seamen, and the good effects of this remedy equalled our most sanguine expectation. After the affusion of the cold water, the pulse was often thereby reduced thirty strokes in a minute, the burning heat of the skin was greatly lessened, and the thirst, headache, and other uneasy sensations, were greatly alleviated. The patient generally found himself so much relieved and refreshed, after the cold bath, that he submitted, not only without reluctance, but with pleasure, to a repetition of it.

“ If called in on the first or second day of the attack, we first directed a strong dose of calomel  
and



and jalap, in order to procure a full evacuation of the bowels, after which the patient was ordered to be carried on deck, with only a great coat thrown loosely around him, and three or four buckets of salt water to be poured on his head and naked body. The operation was repeated, when the febrile symptoms threatened to return with their former violence. Three times a day was usually sufficient. We rarely found it necessary to continue the use of the cold affusion longer than the fourth day; during which time the bowels were kept open by the occasional exhibition of a bolus of calomel.

“From the great benefit experienced in the two or three first trials, we proceeded to recommend it with confidence. *Of all those patients to whom we had an opportunity of exhibiting this remedy, on, or before the second day of the attack, we had the good fortune not to lose one;* but after this period, when the fever had begun to subside, without symptoms of amendment, the affusion of cold water seemed only to hasten the fatal catastrophe. In no instance was it used without the exhibition of calomel at the same time, and we might have been inclined to ascribe to calomel, the merit of the cure that was accomplished, had it not failed with us, sometimes, under the fairest trials.

“No

“ No disagreeable effect was produced by combining the use of calomel with the affusion of cold water ; nor in a single instance did the mercury procure a salivation, although the discharge from the bowels was scarcely as great, as when it was used alone in the cure of the disease. But, in almost every instance which terminated favourably when the cure was trusted to calomel without the cold bath, some degree of salivation came on, and in such cases the appearance of this discharge was beheld with pleasure, being regarded as an infallible mark of safety.

“ It is with the fullest conviction of the superiority of this plan of treatment, to any we have yet tried, that we record its effects. The subjects of our experiments were those in whom we found the disease to attack with the greatest violence in the first commencement, and to act with the most fatal force on their constitutions. We shall attempt no theory of the manner in which the salutary effects of cold bathing in yellow fever are produced, nor venture to recommend it as a certain remedy ; but we think, that in the hands of a skilful and judicious physician, it may often prove a powerful auxiliary, in enabling him to combat the fatal effect of that dreadful calamity we have been describing.”

After

After the body of evidence which has been brought forward, and particularly after this narrative, I may perhaps, though a stranger, be excused for proposing a more general trial of the practice recommended in this volume, to the candid, and unprejudiced physicians of America. Proposals for improving the method of cure of the destructive fever of that country, cannot be considered as superfluous. “Four times as many persons,” says Dr. Rush, “were affected by the yellow fever of 1793, as in 1798, but the mortality in the two years was nearly equal;”\* a melancholy truth, which affords room for much serious reflection. Nor has the subsequent experience of the American physicians, discovered a mode of treatment, on which confidence rests. The great cities of America, are still deserted on the appearance of the yellow fever, which excites every where alarm and dismay. The method of treatment which I have proposed, should not be rejected, as being one which has been already tried there, and found inefficacious. An attentive consideration of circumstances

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\* Dr. Rush's second address to the citizens of Philadelphia, p. 39. published in 1799. Dr. Rush imputes this vast increase in the proportionate mortality, to the desertion of blood letting. Perhaps it may have been in part, owing to the desertion of cold bathing, by which, though used at random, many seem to have been saved in 1793.



cumstances will shew, that the former trials of the external application of cold, could not, on the principles here laid down, be attended with general success; and, that though at times such trials may have succeeded, they must on the whole have been precarious and dangerous. The evidence here produced, shows the singular success of this application, regulated by these principles, in febrile diseases, in various regions of the earth, and more especially, in countries and climates, resembling those of the United States of America. That it will succeed there also, is a fair presumption, which nothing but the result of careful and continued experience should be allowed to overthrow; since the evil is one, for which no other remedy has been found, and, since it is of a magnitude to obstruct the high destinies of a people, otherwise most happy and prosperous.

I venture these observations with hesitation, and offer them with deference and regard. An observer at this distance must be particularly liable to error; and those who have performed their duty with courage and fortitude, amidst scenes of unprecedented toil and danger, are entitled to the respect, as well as the sympathy of their more fortunate contemporaries.

CONCLUSION.

## CONCLUSION.

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**I**T would not become me to conclude without some notice of Dr. Wright, with whose important narrative this publication commences.

This respectable physician, after having retired from the fatigues of his profession, had his services called for, once more, by Sir Ralph Abercrombie, and attended the last West-Indian expedition of that illustrious and lamented commander, in quality of physician to the army. On his return to Britain, he landed at Liverpool, in June 1798, and I had then an opportunity of forming, not merely an acquaintance, but a friendship, with one to whom, while unknown, I had been so much indebted. I found in Dr. Wright, an excellent physician and naturalist, who had devoted a long life to the pursuits of science, not in academic bowers, but in situations of toil, difficulty, and danger; who had profited of his ample experience by constant and unprejudiced observation; who possessed a generous and disinterested temper, and a simplicity of manners, worthy of a  
more

more virtuous age. From that time he has resided in Edinburgh, (where he now fills the office of president of the College of physicians) and I have had the advantage of his regular correspondence, and of his valuable observations. He has been uniformly zealous in promoting my medical pursuits, and to his kindness, I owe the acquaintance of Dr. Macneill, Dr. Robertson, and Mr. M'Grigor, by whose communications I am so much obliged.

During his last residence in the West Indies, and while director of the military hospitals in Barbadoes, Dr. Wright drew up for the Medical Board in London, a report on the diseases most common among the troops in the West Indies. In speaking of the cure of the ship-fever, he observes, "in the beginning of the ship-fever, the cold bath had the best effects; and through the day, when the sick were hot, washing the hands and face suddenly in cold water and vinegar, was exceedingly refreshing." In like manner, in treating of the yellow fever, he remarks, "in the beginning of the yellow fever, the cold bath succeeded admirably, but in the advanced stage, much caution was necessary." I quote these sentences from a report, the whole of which deserves the most careful attention of military practitioners in warm climates, to show that the experience of  
Dr.



Dr. Wright, continued to justify his original recommendation of the cold bath in fever, and to justify in particular, the mode in which I had recommended it, at a time when my publication was equally unknown to him, as his report was to me.

In a few months after his visit to Liverpool, I received from Dr. Wright, his remarks on the second edition of the Medical Reports, much at large. In these, after supporting all the principal parts of my treatment of fever and convulsive diseases, from original observations of his own, he concludes by assuring me, that my work has his unqualified approbation. In subsequent communications from this venerable physician, he informs me of the success attending his use of the cold affusion in febrile diseases, in Edinburgh; particularly in the late influenza, which he treated as a fever of debility, allowing a liberal diet, and the moderate use of wine, but keeping down heat, and flushings, by the sudden application of cold water to the surface; a mode of treatment which he found invariably successful; and he expresses a confident opinion, that the cold affusion, well-timed, will not only cure all febrile exacerbations, but prevent their taking place. "I agree," says Dr. Wright, "with Dr. Falconer, of Bath, in thinking, that the cold affusion will secure persons

sons from taking the plague itself, though exposed to its contagion."

In his different communications, this liberal physician gives me every credit for having ascertained more precisely the rules by which the application of cold to the surface should be regulated, and particularly for the introduction of thermometrical observations into the history of diseases, a practice before, either unknown or neglected. My observations on the changes of animal heat, and particularly on the changes produced on it by cutaneous perspiration, (the origin of which is given, *p.* 247,) had prepared me for tracing the changes it undergoes in fevers, previous to the appearance of Dr. Wright's narrative, and led me insensibly to detect that generally prevailing error of modern times, that the application of cold to the body, externally or internally, is dangerous in proportion as the body is heated; more dangerous therefore in fever than in health; and most dangerous in that state of fever where the heat is greatest. The detection of this error, necessarily connected itself with a true theory of the principal function of the perspiration, that of regulating the temperature of the body in health and disease; a most important function, previously disregarded in the writings of our physicians on fever, and wholly overlooked in the works of  
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what are called the systematic authors in medicine, not excepting the latest of them, Cullen, Brown, and Darwin.\*

That some advantages are to be obtained from a strict attention to the state of the heat in fever, and to the proper function of the perspiration, this volume, now submitted a third time to the public, affords, if I do not deceive myself, important proofs. A careful attention to the changes of the animal heat, and to the state of those functions

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\* This function of the perspiration, or transpiration, had been equally overlooked by the physicians of the continent. The chemical physiologists did not wholly pass it over. In *p.* 272, the speculation of Franklin on this subject is mentioned; and in the year 1790, the celebrated Lavoisier read before the academy of sciences, a memoir on transpiration, the joint production of Seguin and himself, the principal object of which is to shew, that this discharge cools the system, and regulates the living heat, which respiration had produced. This memoir, with the other papers which constitute the volume of the academy for 1790, the last of the series, was not published, in consequence of the revolution, till 1797, and was wholly unknown to me till 1801, when the short-lived peace enabled us to obtain the products of the French press. I was not a little gratified in finding that my observations on this subject, on which I had built so much, were supported by such high authority. So far as I have been able to examine, no abstract of the memoir on transpiration was published at the time of its being read, or before 1797, in any of the French journals.



functions on which it depends, and by which it is regulated, though more requisite in febrile diseases perhaps than in others, is however of importance throughout the whole circle of disease. The capacity of the animal to preserve its heat nearly unchanged in the various changes of temperature of the surrounding media, is essential to, may indeed be said to constitute life. Digestion, respiration, and perspiration, these are the three functions, on which the living heat, and life itself immediately depend, and by the relative actions of which the just medium of the animal temperature is preserved. To mark the various changes in these strictly connected functions, and compare them with the actual changes in the animal temperature in the different circumstances of the living system, might appear a humble labour, because requiring little but patience and attention. Yet on such a labour we can conceive that Bacon might have entered with alacrity; in such a labour Lavoisier was actually engaged: conducted patiently and carried on perseveringly, such a labour might terminate in the most important consequences; might give us just principles of the effects of temperature on life, and after the fruitless wanderings of the human mind for three thousand years, might lead to a true theory of health and disease.

In the progress of such an investigation, the effects of different kinds of food on the actual state of the living heat, and on the faculty of preserving the healthy temperature, would come under examination; the opinions suggested by false theory on this subject would be detected, and the regimen of diet be improved.

The effect of different medicines on the animal temperature would likewise be submitted to experiment; a new light would be cast on their mode of operation; and more accurate rules laid down for their administration.

The connexion between the state of respiration and the actual temperature, certainly not an obvious one, would probably be discovered; and that between temperature and perspiration be distinctly and easily traced.

And, to pass over a multitude of other suggestions that crowd upon the mind, the question respecting the existence of that morbid stricture on the extreme vessels of the surface, by which perspiration is at times impaired or obstructed, heat accumulated, and morbid action induced, would be brought to issue, and one of the most important of the phenomena of disease, be, in my judgment, clearly ascertained.

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But to succeed in such an investigation, it seems necessary that the phenomena of these different functions should be examined, with a reference to each other ; by which each series would be illustrated, and the general results rendered clear and certain.

Leisure for such an investigation, even of the other qualities were not wanting, cannot be hoped for by one whose time is so much occupied, and whose health is so precarious. But under each of these heads, I have collected a few observations, which I shall one day submit to the public, should my life be prolonged. In the mean time, returning to the more immediate object of this publication, I shall conclude with the following remarks.

Though I am far from thinking that fever, properly so called, consists merely of a series of phenomena originating in a morbid accumulation of heat in the system, yet this symptom evidently occurs, more or less, early in that disease ; and it will not now, I think, be denied, that the abstraction of this heat suddenly, without diminution of the strength, if performed early, often, if not generally, puts an immediate stop to the fever.

This is done by the cold affusion, which so far from being a debilitating, may be considered

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as an invigorating power, and which, by the sudden, general, and powerful stimulus which it communicates to the system, destroys the morbid stricture on the skin, and restores that process to its due activity, by which the future accumulation of morbid heat is prevented. It seems at the same time to interrupt effectually the actions of fever, and to restore those of health.

Though the morbid heat be not considered as the original cause of fever, yet it will be evident, on a slight consideration, that no remedy can stop fever, which suffers the morbid heat to continue. I have found by experiment, what indeed might have been safely inferred without it, that a heat, four or five degrees greater than that of health, however induced, cannot exist in the living body, without being attended by increased rapidity of circulation, increasing debility, and all the principal symptoms of fever. If this be true, the other remedies which have been supposed to stop fever in its early stages, whatever their other qualities be, must have directly, or indirectly, the power of diminishing morbid heat. These remedies are, emetics, sudorifics, and blood-letting, all of which I find, by experiment, are possessed of this power, though in different degrees.

Without referring to the origin of the febrile  
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heat,

heat, it may be laid down as a rule, that in febrile diseases it is so far connected with increased vascular action, that whatever reduces this action, reduces the heat. The nauseating, and debilitating effects of antimonial emetics, produce this diminished vascular action in a striking manner, and reduce the heat of the surface, as I have found by the thermometer, in a corresponding degree; and not of the surface only, but of the whole system, if the sensations may be trusted. They also increase the cutaneous perspiration, and stop for a time, the febrile actions. Sometimes, especially when used very early, (for it is only in the first stages of fever that antimonials are useful, or even safe) they interrupt the disease effectually. But much more generally, after the sickness passes off, the fever returns, and returns to the frame very considerably debilitated. If the remedy be repeated, the chance of benefit is diminished, and the debility greatly augmented. Antimonials are more debilitating than ipecacuanha; and remedies of this class are more safe in inflammatory, than in contagious fever. Sudorifics act less powerfully than emetics. But when used early, and duly persisted in, they are sometimes effectual in stopping fever; though more generally useful in alleviating its symptoms. They are useful however only while the morbid heat continues, or the disposition to it exists.

That



That they act by diminishing this heat, is evident; but they also diminish the strength.

Blood-letting is a still more refrigerating remedy, and seems only useful in fever when it produces this effect. It operates no doubt by the sudden diminution of vascular action. I have so seldom used it in contagious fever, that I cannot speak of direct experiments to establish its cooling effect in that disease. But in inflammatory fever, and more especially in that connected with inflammation of the lungs, I have often observed the rapid diminution of the heat as the blood flows, with admiration. Such experiments I have too frequently had an opportunity of making in my own person. In one instance, where my heat was  $103^{\circ}$  of Fahrenheit at the moment the lancet was introduced, and I watched, as usual, the mercury of the thermometer, the bulb of which was grasped in the burning palm of my hand, after a few seconds I perceived it began to fall—at first slowly—and afterwards rapidly. I saw it sink to the 91st degree, I was then cold all over me, and my forehead, and surface, were bathed in a clammy sweat—at this moment *deliquium animi* came upon me, but the bulb of the thermometer being still in my hand, my assistant found the mercury to sink to  $83^{\circ}$  before he could bind up



my arm. On weighing the blood, it appeared that I had lost about eighteen ounces.

I can conceive, that in some fortunate instances, the early use of this remedy may have stopped the progress of fever, or brought it to a speedier issue. But that it has not usually such an effect is certain, and the great debility which it occasions, must impair, or destroy the chance of recovery, where the fever proceeds in its course. In some cases, the moderate use of this remedy may have co-operated with the cold affusion, but where the febrile heat can be removed by any mode of the application of cold to the surface, it is far safer to trust to this alone.

Of this last remedy it can alone be said, that while it subdues the principle of fever, it does not impair, but invigorate the powers of life; that it may be repeated again and again with safety; that its application admits of precise rules; and that, while it is the most powerful of the means of cure, it is the best preventive against the spreading of the disease. In the warmer climates, where the stomach and bowels are so liable to be affected in fever, calomel appears from experience to be the most useful remedy, in combination with the application of cold to the surface. It operates,

operates, no doubt, by clearing the stomach and intestines, and thus removing morbid irritation, and abating morbid heat. It has been thought—though this is less certain—that the specific effects of the mercury on the system, are equally, or more important, and respectable physicians have asserted, that where salivation could be produced in the yellow fever, recovery was almost always the consequence. It may be said, perhaps, that where the power of the absorbents remains, and there is time for salivation to be effected, the disease has been originally of a milder nature, and the recovery more probable from the first. But I may also remark, what has not before been observed, that salivation is accompanied by a more profuse perspiration from the surface, a circumstance which may diminish the febrile heat and irritation.

By the help of observations such as these, we might, perhaps, be enabled to explain the contradictory reports of the effects of remedies by respectable practitioners, in the rapid and destructive fever to which the West-Indies and America have of late been so particularly subject. But it is better to leave their application to those candid and judicious observers, who alone are accessible to the opinions of others, and capable of bringing them fairly to the standard of truth.

Here

Here then I dismiss the pen from my weary hand, one day probably to be resumed, should my health be restored and my life prolonged. I have completed my present task under much pain and difficulty, and should it be the last of this nature that I undertake, I shall have the consciousness, under every event, of having endeavoured well, and may perhaps be allowed to indulge the pleasing reflection, that I have not lived in vain.

*Liverpool, Hanover-Street,*

*6th May, 1804.*



# APPENDIX.

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## *Preface to the Letter to Dr. Clark.*

A CONTROVERSY having arisen among the gentlemen of the faculty at Newcastle, as to the safety of admitting patients under fever into certain wards of the Infirmary there, separated in every other respect from the rest of the hospital, but under the same roof, my friend, Dr. Clark, appealed to the opinions of his medical friends and correspondents, in different parts of the kingdom, and collected a body of evidence in support of the measure, which seems altogether decisive. The whole collection\* contains perhaps the clearest and most satisfactory information on the question respecting contagion, that is any where on record. The following letter forms a part of that collection; as it contains some curious facts on this important subject, it is inserted here.

## APPENDIX

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\* Published under the following title, " A collection of  
" papers, intended to promote an institution for the cure and  
" prevention of infectious fevers in Newcastle, and other po-  
" pulous towns. Together with the communications of the  
" most eminent physicians, relative to the safety and impor-  
" tance of annexing Fever-Wards to the Newcastle and other  
" Infirmaries. By John Clark, M. D." Two vols. 12mo.  
*Newcastle, printed by S. Hodgson, 1802.*



## APPENDIX.

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No. 1.

*Letter to Dr. Clarke.*

*Liverpool, August 5, 1802.*

Dear Sir,

TO the great mass of evidence and authorities which is already adduced in favour of the plan of receiving fevers into the new building attached to your Infirmary, I can scarcely consider any addition as necessary ; but as the experience derived from our fever-wards here is now of fifteen years duration, and as it may bear more or less on the important question at present agitated with you, I am happy to comply with your desire, in giving you a more full account of it.

In the report of your committee is republished an extract of a letter of mine to Dr. Percival, dated May, 1796. I there mention, that for five  
years

years and an half, we had received patients in fever into the Liverpool Infirmary, and for the greater part of the time, into two small wards on the ground floor of the left wing. These patients were on the general establishment of the charity, and had their food and medicines provided in common with the other patients. They entered into the yard of the wing by the same large folding doors which admit all the other patients; but the fever cases were afterwards conveyed into these two wards directly, without using the common stair-case of the wing. Immediately over them, however, were the wards of the other patients, and it was impossible to seclude the nurses of the fever-wards entirely from the other servants of the house; yet, in no single instance was the contagion extended to the contiguous wards. I have also mentioned, that at the end of five years and a half, the place for the reception of fever was removed from those small and ill-constructed wards, to two large and airy wards in the centre of the work-house, a description of which is given. Four years had then elapsed from the commencement of that arrangement, during which time there was no reason to believe that the contagion had, in any instance, spread from the fever-wards to the rest of the building. Six years more have since elapsed, and, on the strictest inquiry, I find, that

that the same assertion may be made up to the present day.

In order to point out the nature and value of this experience, I must be more precise and minute than is agreeable, and must even repeat some particulars in my former letter.

Our work-house is a very large building, which sometimes has contained one thousand four hundred persons, and which is in many respects very imperfectly constructed. The great door in the centre of the building opens immediately into the great dining-room, but is never used. All the persons who enter the house, sick or well, pass through a small door in the right wing, seven feet high, by about three feet and a half in width, where a porter constantly stands to prevent the exit or entrance of the inhabitants, excepting under the rules of the house. The sick are received at this door, whether labouring under fever or not, and are carried across a passage to a receiving house, of which there is one for each sex. Here they are stripped and washed, and their clothes changed; the apothecary examines them on his daily visit, and sends those under fever to the fever-wards. The access to these wards, is, as I formerly mentioned, through the common stair-case of the centre of the building. On the ground floor is the great dining-



dining-room, the access to which, from the rear, is through the area at the foot of this stair-case. On the next floor, is the lock hospital for females ; on the third floor, the fever-wards ; and on the fourth, the children's nursery.

For the ten years in which the wards have remained in this situation, there has been no contagious fever in the lock hospital. But, two years ago, a very alarming fever broke out in the nursery, and extended to no less than 67 children, all of whom recovered by the early application of the usual remedies, of which early and frequent ablutions formed the principal part. This might be supposed to have originated from the fever-wards below—but, on inquiry, it was clearly traced to another source, as you will see by the letter from Dr. Bostock, the attending physician at the time, a man of great accuracy.\* Except,  
in

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\*About two years ago, a very alarming fever broke out in the nursery, by which no less than 67 children were infected. The source of this disease was, however, clearly discovered ; a family, residing in a cellar in one of the most confined parts of the town, was sent in a state of fever to the work-house ; the parents were placed in the wards, but by some neglect, the children were sent into the nursery, with some degree of the disease upon them, and without removing the infected clothes which they had worn before they came into the house.

*Extract of a letter from Dr. Bostock, to Dr. Currie, printed in vol. i. p. 199, of Dr. Clark's Collection.*

in this instance, contagious fever has been unknown in the nursery, where the apartments are clean, spacious, and well-ventilated, being at the top of the building, and the children have the appearance of health and vivacity.

Whatever your sentiments may be respecting the narrowness of the sphere of contagion, I think you would not have ventured to predict such a singular exemption from fever, under such circumstances. For the children are continually passing up and down the stairs, and playing in the stair-case; and, at particular times of the day, that is, immediately before dinner, they are crowded towards the bottom in a singular manner. The fact is, their food is distributed to them from the dining room, where a great body of the people from the wings of the house dine; and as the doors open at a certain hour, a great crowd collects previously at the bottom of the stair-case, and in the area below, struggling for admission. While I was examining this ill-constructed stair-case, which is never clean or sweet, about two years ago, a patient, under fever, was brought across the court, a little previous to the dining hour. I followed the patient up into the ward, and counted exactly eighty-three children on the stairs, within three or four feet of every one of which, the patient must have passed, and



to some much nearer. On mentioning the circumstance to the nurses, they seemed to think it nothing uncommon, but as what might happen any day. Though no clear instance of injury arising from such occurrences can be brought, I have always deprecated the circumstance which leads to them, and in conjunction with others of my brethren, urged, in the parish committee, the propriety of having a distinct passage to and from the fever-wards. Various consultations were held on this point, but the structure of the building rendered such an alteration impossible, without entirely defacing the front; and the want of any actual proof, or even appearance of injury from using the common stair-case, cooled our zeal. The probability of a separate house for fever, from the inadequacy of the present wards, rendered it less necessary to press the alteration, and the proposal is at length happily superseded, by the actual erection of such a house, now in rapid progress.

The fever-wards themselves, though very far from being sufficiently extensive, are admirably ventilated, and, on the whole, very happily conducted. The nurses still live in these wards, night and day, their apartment being in the centre between them, and open at the top to the air of both, as described in my letter to Dr. Percival,



cival, already referred to. In the course of ten years, several of them have caught the contagion, but assistance being immediately had, one only has died, so far as I can learn, a woman upwards of sixty, and otherwise very infirm.—In the instances where the contagion has been thus communicated, it has been to nurses newly introduced. They have seldom been, any of them, affected more than once; their constitutions acquiring, by habit, insensibility to the contagious impressions. I mentioned to you, that two of the present nurses have each of them a child actually living with them in the wards, and going out to school in the day. These children appear neat, clean, and healthy, though they sleep in the very centre of the patients every night. Their mothers were convinced they were not liable to any injury, for they never came into contact with the patients, and they seemed to think they should be themselves perfectly safe, if it were not that they are employed in offices that oblige them to be often, and sometimes for a considerable time together, in contact with the sick, and exposed to the undiluted exhalations from their skin and their lungs.

Experience has, however, taught them to estimate even this hazard very lightly; and it is, in fact, as easy to get a nurse for the fever-wards,

as

as a servant for any other part of the house. This exemption of the nurses from contagion, (a few instances excepted) is to be attributed not merely to the ventilation of the wards, but to the singular cleanliness of the patients, on every one of whom, in whatsoever stage of the disease, complete ablution is performed in one form or other, at least once every day ; this being done where the fever is high, and the heat considerable, with water perfectly cold ; and where the strength and heat are reduced, with water tepid, or even warm, and sometimes mixed with vinegar or sea salt. The methods of Morveau or Carmichael Smyth, have never been practised in these wards, or in the former wards of the Infirmary ; and our experience seems to decide, that the proper use of pure water and pure air, may wholly supersede them.

To the practice of completely washing and changing the patients in the receiving houses, before they are carried up the great stair-case, I attribute the extraordinary circumstance of the contagion never appearing to be communicated to the bye-standers in this narrow passage, of which a melancholy and striking circumstance has impressed conviction on my mind. Notwithstanding the healthfulness, and especially the exemption from fever, of all the places in the immediate vicinity

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cinity of the fever-wards, in the year 1801, the master and mistress of the house, and a young woman, daughter of the assistant mistress, were at different times affected with typhus, and all of them died. This circumstance occasioned great agitation. The master of the house had never been in the fever-wards, the mistress very seldom; and they lived in a part of the building very remote. But Miss Nickson, the young woman alluded to, had, it was found on inquiry, been incautiously turning over the linen from the fever-wards before it had been steeped in water, and to this circumstance her fever was imputed. In all these cases (one of which only I attended) the disease proceeded insidiously, and was scarcely suspected till it was too late. But how, you will ask, does the case of the master and mistress apply to the opinion I have given on the benefit of ablution in preventing contagion? I have before mentioned, that all persons, sick or well, and the patients under fever among others, enter the work-house by a small gate in the right wing. This gate is close by the apartments of the master and mistress, that they may have this important pass immediately under their eye. In fact, the window of their parlour is on the outside of the gate, and within the distance of four feet, and the door of a coach, bringing up a patient under fever, must, from the narrowness of the passage,

be



be within a foot or two of this window. Here the patient is taken out and carried through the door, and generally examined by the master or mistress in the inside. In the year 1801, in this great town, there were admitted, on the books of the Dispensary, nearly six thousand patients beyond the usual number; from twelve thousand, they increased to eighteen thousand, and typhus fever was extremely prevalent. Of course, the distress of the poor was great; there was an unusual pressure for admittance into the fever-wards, which were filled beyond all former precedent, and many were obliged to be sent away. The examination of these unhappy persons in their unclean and contagious state, unwashed and unventilated, and the rejection of them when necessary, devolved on the master and mistress, attentive and humane persons, who doubtless fell victims to this dangerous and painful duty. This is the opinion of their successors, Mr. and Mrs. Hall, who assure me, that they make a point of never approaching within a yard or two of suspected fevers, and have hitherto escaped. The porter, who has opened and shut this gate for several years, has escaped also. He assures me, that he has used the same precaution; but he inclines to ascribe much of his safety to the use of tobacco, of which he chews very large quantities. The persons employed in washing

and cleansing the clothes of the patients, in the receiving houses, have sometimes been affected by fever ; but being on their guard, and applying for assistance in time, fatal consequences have, I believe, never ensued.

The striking advantages of external ablution, both as a preventive and a remedy, have engaged our particular attention in the construction of our new fever-hospital. Before the patients enter into the body of the building, they pass by an entrance peculiar to themselves, into a vestibule, where there are baths of every kind, where they are stripped of their foul clothing, washed, and clothed in the hospital dress, and thus purified and refreshed, removed into their proper apartments. In the plan which you had the goodness to show me, I believe there is a provision of the same nature ; and if not, I would submit the propriety of superadding something of the kind, not for the safety of the patients in the adjacent wards of the Infirmary, but for the benefit of the fever patients themselves, and their immediate attendants. For as to any danger to the patients of the Infirmary, from the mere proximity of the walls of the fever-house, while you enter by distinct passages, and observe the usual and obvious precautions, the details which I have given you will show you, that it is impossible for me to listen  
to

to it for a moment, even if the uniform experience of the Physicians of Liverpool were not supported by that of every other part of the island, where it can fairly be collected. Nothing, indeed, seems to be more firmly established, than the narrow sphere of even the most virulent contagions, where the air is allowed to circulate freely. Hence, in the torrid zone, where the heat of the atmosphere in a manner forces ventilation, the infectious quality of the most malignant fevers is a matter of dispute among the faculty, though I believe with yourself and Dr. Wright, (the present worthy President of the College of Physicians at Edinburgh) that, under a similar deficiency of ventilation, they would be equally, or more infectious, than the fevers of our northern latitude. Dangers that cannot be calculated, are always magnified by the imagination ; and the baleful influence derived to the atmosphere, from taking its constant course over extensive swamps of many thousand acres of putrefying animal and vegetable matter, has been loosely applied to the same air, passing over a human body, for a thousandth part of the time, and a millionth part of the surface. Yet the testimony of all actual observers, in every region of the earth, is calculated to correct this error. Even the sphere of contagion of the plague, the most terrible of the diseases which affect the human species, seems limited to a very few



few feet, or even inches, in a free circulation of the air ; and it might be received into your projected fever-ward with safety to the patients of the Infirmary, if we may believe the concurrent testimony of Savary, Bruce, Ruffel, and of Antes, the most recent and satisfactory of them all.

It is folly to pretend that this subject is of a professional nature, and not cognizable by any fair understanding. The facts are numerous—the inference easy. It is only necessary for unprejudiced men to make themselves masters of the first ; the last, seems to me, inevitable. Even those who will not take the trouble of obtaining the information necessary to inform their own judgments, might regulate their conduct safely, by conforming to the usual maxim on similar occasions—that of adhering to the opinion of those who are likely to be best informed. That persons, the business of whose lives is to observe and to combat the effects of contagion, should be best acquainted with its laws, and their evidence best entitled to weight, in a question depending on those laws, are propositions that no one will dispute ; and the force of which can only be eluded by shewing that, in the point at issue, they have an interest likely to pervert their judgment or their evidence. But what peculiar interest have the faculty in institutions for the prevention of disease, unless,

unless, indeed, the honourable reputation they may derive from serving the community? What interest have members of the faculty, already in the possession of public confidence, in committing their reputation to hazard, in the support of plans of a dangerous nature? If such plans succeed, their effects cannot be concealed; and if they turn out to be such as their opposers prophesy, they must destroy the reputation of their supporters.

In one point of view it is perhaps fortunate for the world that the controversy at Newcastle proceeds to such a length. The subject will undergo a complete investigation, and the combat you are maintaining will, in the end, I have little doubt, decide the question, not for Northumberland only, but for every part of the kingdom where it still remains undecided. That much interest will attach to your proceedings, not at the present moment merely, but in future times, I entertain little doubt. In this, and in every view of the subject, I have great pleasure in ranging myself on your side, and in staking, with confidence, what little character I have upon the issue.

With every sentiment of respect and regard,

I am, Dear Sir,

Your faithful friend and servant,

J. CURRIE.





The following Letters on the Plan for erecting a LUNATIC ASYLUM, at LIVERPOOL, having been several times applied for by persons engaged in similar undertakings, are now given to the public at large.

*Liverpool, August 29th, 1789.*

*Mr. Gore, Printer of the Liverpool Advertiser,*

Sir,

Be so kind as to give a place in your useful paper to the following remarks on public charities, and particularly on the proposal for a Lunatic Asylum.

IN forming an idea of the connexion between the various ranks of society, we may consider a nation as a great trading company, and if we suppose this company to be engaged in both manufactures and commerce, these terms will, in one sense or other, apply to almost all the occupations of civilized life. Each partner in the business is not equally concerned, it is true, because every one does not throw the same share of property,

perty, talents, and activity, into the common stock, but all are interested in the general success, and the welfare of each is connected with that of the whole.

A business of this kind naturally divides itself into various branches, in which the different partners must engage according to their respective knowledge and abilities. That there may be regularity and order, there must be a proper subordination; each must exert himself honestly in his particular department; and while some plan and regulate, others must labour and execute.

Of these two divisions, the last indeed is by far the most numerous. A few suffice to give general directions, but many are required for the manual operations. The manufactures carried on are almost all of them from raw materials, and demand much time and labour to bring them to perfection, and the exchange of these manufactures, with those of other *great trading companies*, is a business of great enterprize and exertion. The earth is hard and stubborn, the ocean is dark and tempestuous. To conquer the ruggedness of the one, and to triumph over the dangers of the other, the great bulk of mankind must work and toil. It is indeed evident, that the various classes of men grow more and more numerous the lower they descend.

A well

A well regulated society may be compared for its solidity to a pyramid. It may be compared to a pyramid likewise because it terminates in a point, because the strata of the building are of greater circumference as they approach the ground, because each inferior stratum, supports all that are above it, and because the lowest stratum, which is the widest, sustains the building : here the analogy fails. The foundation of a pyramid becomes more solid, the greater the superincumbent weight. It only sinks the deeper in the earth. But the foundation of this living edifice is made of less firm materials, and if it be too much pressed upon, it will crumble away.

This comparison may serve to illustrate the immense consequence of the labouring poor. They demand our constant attention. To inform their minds, to repress their vices, to assist their labours, to invigorate their activity, and to improve their comforts ;—these are the noblest offices of enlightened minds in superior stations ; offices which are of the very essence of virtue and patriotism, which must attract the approbation of the good and wise, and which will obtain the favour of the Eternal Being, who is the Great Father of us all.

But of all the claims which the poor have upon us, there is none so pressing, or so generally admitted, as that for assistance when sinking under disease.



disease. Accordingly, institutions for the relief of the sick poor have been established all over the kingdom, and are perhaps the most unexceptionable of all public endowments. In this great and encreasing town, institutions of this kind have been supported with singular liberality, and have been attended with singular success. One disease only has no provision for it; one disease, awful in its appearance, and destructive in its influence, but of so peculiar a nature as not to admit of relief under any general establishment. It is needless to say that this is *Insanity*. The difficulty and expense of founding Asylums for Lunatics, have been the only reasons, it may be presumed, why they have not been universal, since it cannot be doubted, that they have the same general recommendations as hospitals for the sick, and that they even have peculiar claims in their favour, both of policy and of humanity.

Of the various evils to which men are subject, there is indeed none so dreadful as insanity. Other calamities are exterior, and pass away with the flight of time; or if they are mental, they yield to the constant succession of external impressions. If human nature is unable to throw off other evils, it happily sinks under them, and death presents itself to the good and the brave, as the termination of calamity. But madness, while  
it

it hastens not the approach of death, destroys all that makes life valuable. It is not a single enjoyment of which it bereaves us, nor a single blessing that it carries away. It preys not on the gifts of fortune, but on the attributes of reason, and strikes at once at all the powers and privileges of man!

Yet if the victims of this fearful malady were incapable of relief, as some rashly imagine, we should have only to tremble at their fate, and to mourn over the degradation of our nature. But while experience teaches us that their situation is by no means hopeless, as men and as Christians, we are called on to exert ourselves in their behalf. If affliction of any kind engage our attention, if disease in any form excite our compassion, let not those be denied our pity and our succour, whose affliction is the most deep, and whose disease is the most terrible.

In the institution of a Lunatic Asylum there is this singularity, that the interests of the rich and poor are equally and immediately united. Under other diseases the rich may have every assistance at their own homes, but under insanity, relief can seldom be obtained but from an establishment for the treatment of this particular disease. Hence the objects of a Lunatic Asylum are two-fold—to provide accommodations for the poor suitable to their

their circumstances, and to make provision for those of superior stations, who are able to remunerate the expense. The objects of such an institution are two-fold in another sense: It holds out a shelter both for the curable and incurable. To the first it proposes the restoration of reason, and while it relieves society from the burthen of the last, it covers the hapless victims themselves from the dangers of life, and from the selfish contempt of an unfeeling world.

A Lunatic Asylum differs from hospitals for the sick in another important particular. These require not only a great expense for their original establishment, but a great annual contribution for carrying them on, since the patients in hospitals have not only their lodging and attendance gratuitous, but their food also, and sometimes their cloathing. On the contrary, in a Lunatic Asylum, the expense of diet and cloathing (except in very particular cases) never falls on the institution; this being defrayed for the paupers, by the parishes to which they belong, and for those in better circumstances, by the guardians of their property. It is the policy of an asylum to make these two classes connect with each other, so that the increased payments made by the rich, may serve to diminish in some degree, the demands on the poor. Hence the annual expense of an Asylum is  
small



small, compared with that of hospitals, properly so called, though the expenditure required for the erection and fitting up of the building, must no doubt be considerable. But it is not the character of the inhabitants of Liverpool to let a plan for a public institution that can be proved to be useful or honourable, fall to the ground, for want of contributions to carry it on; much less, a scheme of humanity so interesting and important. Let the usefulness of this scheme be made apparent to the public, and its success is infallible.

Every informed mind must indeed rejoice, that the general meeting called at the Infirmary to consider of the propriety of an Asylum for Lunatics, were unanimous in their approbation of the measure, and that a committee appointed by that meeting, are now preparing a plan for carrying it into effect. If the funds for the Asylum can be raised, without infringing on the interest or property of the Infirmary, the friends of that hospital will doubtless rejoice to see the institutions connected together, by which mutual advantages may be obtained, and the great object of all such charities, the relief of human misery, be promoted and extended.

The only other point to be considered, is the extent of this Asylum. The most prudent conduct

duct will be, not to enlarge it much beyond the present necessity, but to erect it on a plan, which may admit of future additions, according as future experience may point out that they are required.

Under these restrictions it is to be hoped that the public voice will be unanimous in favour of the proposed establishment; and that the magistrates especially, will lend it their support. So shall another evidence be reared, in addition to those which already reflect credit on the munificence of Liverpool. Our public buildings for pleasure, as well as business, are in a high stile of elegance and splendour: our institutions for the care of man's perishing body are already perhaps brought near to perfection;—our honours will be increased, and the system of our charities completed, by an institution for the health of his immortal mind.

J. C.

*October*

*October 15th, 1789.*

*Mr. Gore,*

Sir,

IT gives me pleasure to find, that my letter to you of the 25th of August, on the proposal for a Lunatic Asylum, has been so far noticed, that its defects have been discovered, and that some gentlemen are desirous of seeing them supplied. I proceed therefore willingly to discuss those points which connect the subject with our particular situation, and which the limits of your paper prevented from being included in my first address—It may seem, indeed, that as the measure has been approved at a general meeting called by the mayor, where the scheme proposed by the committee was examined and adopted, it is not now necessary to enter farther into the business. But as objections have been started from some respectable quarters, and as several gentlemen of property and character seem as yet to hesitate on the propriety of the measure, it may not be improper to consider it more particularly.

1. It is asked how our Lunatics have been hitherto



therto bestowed, and what inconveniencies have been felt from the want of an Asylum.

Hitherto such as have not been sent to a distance, have been confined in the Poor-house, a building erected for the reception of helpless infancy and of declining age, which contains within its walls upwards of a thousand objects of this description, and which neither has, nor can be supposed to have, proper accommodation for Lunatics, who require so very peculiar a treatment. Hence the burthening of the Poor-house with the Insane, has been attended by many serious inconveniencies. It has introduced disquiet and disorder into the institution, when the Lunatics have been suffered, as is common, to run at large; and where they have been placed in confinement, no adequate provision or attendance having been provided for it, unhappy consequences have followed to these hapless beings, over some of which humanity laments, and delicacy must draw a veil. In such a state of things, much could not possibly be attempted for the recovery of reason; but the more moderate have been kept as quiet as possible, and some of the more furious have been sent away. The faculty who have attended the sick of this great hospital, and the committee who have superintended it, have done their duty faithfully: it is only to be lamented,

lamented, that the evil, on the present system, appears to be irremediable. When the Poor-house shall be relieved from the Insane, the exertions of the respectable magistrates who are now so laudably employed in improving its regulations, will be more successful. Their attention being confined to the proper objects of this institution, they will then find it easier to extirpate vice, disorder, and guilty idleness, from this great family of the lowest and most ignorant class of society, to prepare the young for entering the world with habits of industry and sobriety, and to give comfort and quiet to the old, whose days of labour are past, and whose chief duty it is to prepare themselves for a future world.

2. It is said, that though an Asylum for Lunatics may be desirable, yet that sufficient accommodation may be found for them without erecting a building on purpose. Some have pointed to the present House of Correction as a proper place, and others mention, that cells may possibly be appropriated to them in the New Jail. That any plan which would separate the Lunatics from the general mass of the poor, would be an improvement on the present system, it is but fair to allow; but to each of these proposals there are strong objections. To the first, may be offered the objections already stated, against complicating the discipline of a

Poor-house with that of an institution for the Insane, with which it has no alliance. It may be urged likewise, that the present House of Correction, when vacated, will be wanted for a feverward to the Poor-house, to prevent the spreading of those contagions which, with every care, will sometimes be introduced into the building, and sometimes generated within its walls. And it may be added, that the House of Correction is very unfit for an Asylum for Lunatics from its structure and size, which a single glance will show to be inadequate to the purpose, and from its situation, which is exposed to idle curiosity and perpetual noise. On the other hand, the appropriation of any part of the new prison to the reception of the Insane, may be supposed a very crude notion. That great and scientific edifice is destined to a very different purpose; if it were not, no part of it could be adapted to incurables without considerable alterations; and who would seriously think of planting an institution for the recovery of reason, within the precincts of a jail?

The truth is, these proposals have proceeded from an imperfect notion of the design of a Lunatic Asylum. If its intention were merely to provide a prison-house for the Insane, where they might be hid from the sight of their friends 'till the



the grave should hide them for ever, such proposals would deserve consideration. But this is only one object of an Asylum, and that one the least important. It has the greater object of restoring reason itself, and such notions do not correspond with this high design.

3. But, while these schemes appear too narrow, another has been proposed that seems to run into the contrary extreme. Some warm supporters of the Lunatic Asylum, (particularly one gentleman, who has the power and the will to give it most generous assistance) are of opinion, that it ought to be a distinct institution, placed in the country, though near the town, where it may possess the advantage of the purest air, with a considerable space for the amusement of the patients in different exercises, and for their occupation in gardening and other innocent and healthful employments. when their minds are sufficiently calm to be engaged in this way. To this proposal the difficulty and the expense of carrying it into effect, are the only objections, for it cannot be denied, that it is, in the abstract, the best of all others.—Dr. Hunter of York, in a letter to the writer of this, gives a decided preference to this plan, and earnestly wishes, that every county in the kingdom would adopt it.—His opinion is the more to be regarded,  
because

because it is founded on actual experience, having himself been the principal agent in establishing an institution on this plan in his own county, to which he is the sole physician.—The YORK LUNATIC ASYLUM. But, it is to be feared, that such a plan can only be successful when proposed as a county establishment, and it does not appear that Lancashire is likely to unite in a measure of this kind. In Manchester, a Lunatic Hospital connected with the Infirmary there, has long flourished; and a similar establishment at Liverpool will probably answer every exigence that may arise, for many years to come. Should other districts of the county require in process of time similar establishments, they will doubtless, in this, as in other instances, follow the example of the leading towns. That the expense of a separate establishment in the country may be fairly computed, let us attend to a few obvious facts. In the Asylum at York, the patients are divided into eight classes, which pay according to eight different rates, regularly progressive, from six to twenty shillings a week. It may be presumed, that these rates defray the expense of maintenance, and that the sums raised for this Institution by contribution, have been employed in the original purchase and improvement of the ground, in the building and furnishing the Asylum, and in the expense of a separate establishment. By the statement

ment published on the first of January, 1788, these sums appear to be as follows. Raised

By Benefactions £.9155

By Legacies 1718

By Collections 813

— In all £.11,686.

There is no account of any accumulating fund ; the York Asylum is adapted to sixty, or perhaps seventy patients.

As the purchase of land, building, &c. cannot be expected to be cheaper in the vicinity of Liverpool than of York, a similar plan could not be executed here at a lower rate. And though we built a house for the reception of thirty patients only, yet, as the quantity of ground required, and the expenses of the establishment, would not be much less, the sum of the expense could not be calculated at less than two thirds of that of the York Asylum.—But it seems scarcely to be expected, that eight thousand pounds should be procured for this purpose in the town and neighbourhood of Liverpool, where some of the leading men seem as yet indisposed to a Lunatic Asylum on the easiest and most economical plan. Should the opulence and public spirit of any individual, or of any combination of individuals, convince the writer, that his doubts are ill founded, he will heartily adopt this more extended scheme, and promote it by the best of his humble endeavours.

In



In the mean time the plan approved at the General Meeting, seems deserving of every encouragement, not only as the simplest, and least expensive, but as the only one likely to succeed, and as one that bids fair to accomplish all the more important objects.—By combining the Lunatic Asylum with the Infirmary, there will not only be an immense saving of expense in the building itself, but in the annual disbursements. The same offices, apothecary, and board of œconomy will serve both, besides other advantages; and for a third of eight thousand pounds, all that is wanted may possibly be obtained. To this union the same objections do not apply, as to a house for Lunatics in conjunction with the Poor-house. The discipline of an Infirmary, and of a Lunatic Asylum, have similar objects, and require the same habits, and nearly the same degree of watchfulness and attention. The institutions themselves are closely allied in their nature; the first affords relief to diseases of the body, the second to diseases of the mind. That these are more nearly connected than is commonly imagined, it would be easy to show, if this were the proper place to enter on such discussions. Madness indeed can only be called a disease of the mind, because its most striking symptom is the derangement of the intellect.—The disorder, it is reasonable to suppose on every theory, is seated not in the agent but in the instrument of thought, and to borrow

an expreffion from the letter of the enlightened phyfician already mentioned, a madman may be defined, “ a man out of tune.”

4. This fubject muft not however be difmiffed without noticing an objection to the plan which has been adopted, that comes from a very refpectable quarter. It has been fupposed that the vicinity of the Lunatic Afylum to the Infirmary might be hurtful to this charity, from the patients in it being difturbed by the noife of the *Insane*.—As this objection is an important one, it has been particularly examined. Where experience can be had, it is always fafeft to have recourfe to it, and this has been done in the prefent inftance. On this particular point Dr. Hunter of York, Dr. Simmons, phyfician to St. Luke’s Hofpital London, Dr. Eafon, phyfician to the Infirmary and Lunatic Hofpital of Manchester, Dr. Moncrieff of Briftol, and Dr. Cleghorn of Glasgown, have been confulted, and the writer of this has alfo had ample communication on the ftructure and æconomy of Lunatic eftablifhments with Dr. Gilchriſt of Dumfries. He has likewife, by the affiftance of Mr. Chriftie of London, obtained a plan and an account of the Lunatic Hofpital at Montrofe. To detail the information contained in thefe letters would be tedious and needlefs; they are open to the infpection of any Gentleman who may wifh to perufe them, as well as a copy of the words in which



which the objection was stated. It will be sufficient to say, that on this point, the answers of such as have had experience, are clear and satisfactory. In the Dumfries Infirmary, Lunatics were at first confined on the ground floor, under the same roof with the other patients, but their numbers having increased, a separate building has been erected for them, which stands as a wing to the Hospital; and, as appears by a plan of the whole, at a distance from it of thirty feet. In this instance, the objection it is clear has never occurred. In Manchester the Lunatic Hospital is in close connexion with the Infirmary, as those who have visited that town must have seen, yet here we have the express assertion of Dr. Eason, that no such inconvenience has been felt, and this account has been confirmed by Mr. Darbey, a very ingenious gentleman, who has seen the spot on which our Asylum is intended to be built, and who served the office of apothecary to the Manchester Infirmary for twenty years.

Mr. Christie and Dr. Simmons mention that this objection was started to the vicinity of St. Luke's with the Lying-in-hospital, but that it was over-ruled, and that experience has proved it to be merely hypothetical. Yet by the plan of St. Luke's, which the former has been so kind as to send, the distance between these buildings is only  
forty



forty feet. Between the Liverpool Infirmary and the projected Asylum, a distance of fifty yards, if necessary, may be obtained. If to these instances we add, that the trustees of Guy's Hospital, with all the experience of other institutions before them, and with a fund that is adequate to almost any expense, are about to erect a building in connexion with that Infirmary, exactly upon our plan, it is hoped that the danger apprehended in our case, will no longer be feared.

Every new scheme must expect to meet with objections, and he whose judgment suggests them to him, does society a service in proposing them openly. If they are well-founded, they may prevent an ill-advised project, if they are founded in part they may improve a hasty measure, and if they are altogether erroneous, they will serve to illustrate a wise purpose and a judicious scheme. Those gentlemen therefore who have openly opposed the plan of the committee, conceiving that a better might be executed, are to be applauded for withholding their assistance till their objections are in some degree removed; and such as have hesitated in their approbation of any measure of the kind, not perceiving the grounds on which it is supported, have done wisely to withhold their countenance for further information.—That the scheme of the Committee does not comprehend every

every *possible advantage*, it is but candid to allow; but this is in no respect singular. We must not reject those advantages which are the best that can be obtained, because they are not as good as may be conceived, nor refuse a blessing, though it has some tincture of alloy. Bounded in our knowledge as well as in our power, we cannot expect that the work of our hands shall have the attribute of perfection.

To those who may be surprized that a measure which seems now so desirable, should not have been sooner carried into effect, the difference between the objects of this and of other charities, may be pointed out. The cries of poverty and of sickness will be heard, but Insanity alas! cannot make its complaint!—Hence the victims of this disease have passed too much unregarded, and when they have been noticed, they have been thrust from the sight into prison-houses, whose secrets, if they could unfold them, might often “harrow up the soul.” A late national distress has however forced the subject upon general attention; the example of Liverpool, there is good reason to believe, will speedily be followed by several of the principal cities in the kingdom, and among the happy consequences of the issue of that calamity, future times will probably enumerate a more general provision, and a more human treatment

treatment of this hapless class of our fellow-creatures.

The writer of this is not biaſſed in favour of the propoſal for a Lunatic Aſylum by his having been the author of the ſcheme. On the contrary, it was propoſed originally without his knowledge; that honour belongs excluſively to others. But as there is a public, as well as private duty attached to every ſtation of life, when this propoſal was brought forward, he conceived it came within the ſcope of his profeſſional duties to form a judgment upon it on the beſt information in his power. —The grounds of this judgment he now lays before the public, and he has the ſatisfaction of thinking, that though this may appear an uſeleſs labour, it cannot poſſibly do harm. If the ſcheme is a good one, it cannot be too nicely examined: it is the character of truth and wiſdom to appear more advantageous the more they are ſeen, it is for fraud and folly only to ſhrink from the light.

J. C.

P. S. Since writing the above, I have been favoured with a letter from Dr. Hunter of York, in which he has been ſo kind as to rectify one or two miſapprehenſions reſpecting the Aſylum for Lunatics there. He mentions, that inſtead of ſixty or ſeventy, this building, with the laſt additions,



tions, will contain ninety patients, and that the sum total of its expense is something more than ten thousand pounds, fifteen hundred having been laid by for additions and repairs, a circumstance not mentioned in the report of 1787, from which my statements were drawn.

Dr. Hunter is farther of opinion, that a separate building and establishment for thirty Lunatics, in the neighbourhood of this town, might be reared for a much smaller sum than what I have supposed, conceiving, no doubt, that the experience derived from the Asylum at York, which was in a great measure a new undertaking, would point out a less expensive method of attaining the objects in view.

Though I have argued on the supposition of a building for thirty patients only, yet, I am of opinion, that we ought not to erect one for less than forty, the grounds of which shall (if necessary) be laid before the public on some future occasion; and though in deference to this learned and respectable physician (whose kindness and liberality are worthy of every acknowledgment) his opinion is published as well as the facts he has offered, yet my predilection for the plan adopted, of connecting our Asylum with the Infirmary, as  
the

the best that can be pursued in our circumstances, continues as firm as before.

In treating on this subject the following fact (which came very lately to my knowledge) ought to find a place, as it may serve to illustrate more strongly the propriety of some establishment for the Insane.

It appears that Mr. Howard visited Liverpool several years ago, and witnessing the situation of the Lunatics in our Poor-house, that he was impressed with our want of a separate building for their reception. This, it should seem, dwelt on his mind, and some time afterwards he wrote a letter to the Mayor of that year (Mr. Pole) from Constantinople, recommending the erection of a Lunatic Asylum, and offering fifty pounds towards it, whenever it should be undertaken, a sum which his executors would be instructed to pay, on production of the letter, should his life be demanded of him before his return. Hence the name of *John Howard of Cardington* graces our subscription list. Mr. Howard has since been in Liverpool, and though he had much conversation with the writer of this, as well as with others, on the subject of our charitable Institutions, it does not appear that he took any notice of his own remarkable offer. He learnt however that the  
scheme

scheme for erecting a Lunatic Asylum, had been brought forward by a public-spirited gentleman, and though deferred for the time, that it was likely in the course of a few years to be carried into effect. Mr. Howard is again gone abroad, and should he live to return and revisit Liverpool, it is hoped that in this particular he will not be disappointed. But this a pleasure which it is feared he may never enjoy.\*

Having awakened the powers of reason, and the true spirit of charity throughout the nations of Europe, he is now attempting to diffuse them among the disciples of Mahomet. While the sovereigns of Russia and Germany, are carrying devastation and slaughter along the coasts of the Euxine and the shores of the Archipelago, this *Prophet of Mercy*, approaches the benighted followers of the Crescent, from another quarter, with a mission of peace and love. He was last heard of from Petersburg. Thence passing through Moscow, he purposed to enter the Turkish empire eastward of the sea of Azof, to avoid the storms of war. The rout he has marked out crosses the mountains of Circassia, and passes along the shores of the Caspian into Persia and Armenia.

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\* He died on this journey at Cherson.



Armenia. His pilgrimage will then extend across Arabia Petrea, and through the Isthmus of Suez into the continent of Africa. If life is granted him, he will traverse the nations that inhabit the southern shore of the Mediterranean, and passing into Europe by the straits of Gibraltar, return by Spain and France to England.—To this singular tour he has devoted three years, and he himself, it is said, has little expectation of living to go through it.—It is most probable, therefore, that we shall not see him again. But no matter—wherever he finds a grave, the spot will be hallowed, and his name consecrated in the admiration of posterity.

*Quo nihil majus, meliusve terris*

*Fata donavere, bonique Divi;*

*Nec dabunt, quamvis redeant in aurum*

*Tempora priscum.*

HOR.

JA. CURRIE.

*Liverpool, 12th November 1789.*

N. B. The Lunatic Asylum was completed in the year 1790, nearly on the plan recommended above. It has accommodations for sixty-four patients. No inconvenience has been ever experienced from its vicinity to the Infirmary.

J. C.

*May 7th, 1804.*



*Preface to the Letter to Dr. Beddoes.*

HAVING in my dedication to Sir Joseph Banks mentioned the use of the Nitric Acid, as a remedy in Lues Venerea, I think it right to give the following letter to Dr. Beddoes, as containing the result of my trials of it at the time the letter was written—my subsequent experience is of the same mixed nature.

I have not used the Nitric Acid as a remedy in fever—some of my friends have tried it in that disease, and thought it salutary.

*May 8th, 1804.*



*Letter to Dr. Beddoes, on the Nitric Acid.**Liverpool, 1st October, 1798.*

Dear Sir,

I am truly sorry I have occasioned you the trouble of writing so often to me, by neglecting to comply with your wishes respecting the nitric acid; but the truth is, my experience of its effects in lues is not so extensive, or so uniform, as to enable me to speak with confidence on a subject, where accurate conclusions appear to be so difficult. Nevertheless, since you desire it, I will give you a short account of what I have observed.

I began to use the nitric acid in lues, at our hospital, in the beginning of 1797. In the two first cases, there were ulcerations on the penis, and open buboes in the groin, but no decided evidence of the system being affected; and the disease was in each case of less than three months standing. In the third, the disease had been in the habit upwards of a year; the surface was  
covered

covered with venereal eruptions ; the throat had been affected, and the glands of the neck, on each side, had been indurated, and were in a state of open ulceration.—The patient had undergone a course of mercury in the hospital ; but, after pushing it as far as her system would bear, she had been discharged, about six weeks before, with little or no amendment in her symptoms. The last six weeks, she had been in the country, on a milk diet, and her health was somewhat recruited. I paid much attention to these three cases, and have minutes by me respecting them, of considerable extent. The two first were males.

Each of the men took a pint of water daily, gratefully acidulated with the nitric acid ; a drachm being at first used in each pint, and afterwards a drachm and a half ; but this last proportion appearing to affect the bowels by griping, the original proportion was returned to, and the patients took a pint and a half of the acidulated water daily ; i. e. a drachm and half of the acid, as already mentioned. In the case of the female, we never exceeded a drachm, her bowels being very irritable.

In five weeks, every symptom of disease in the two men was gone ; and I presented them to the Board, as remarkable instances of lues being cured without

without the use of mercury. They attended at my house weekly, for some time ; but, being sailors, they went afterwards to sea, and I have never heard of them since.

In the female, the same happy progress continued for nearly a month ; the eruption on the skin diminished, the nocturnal pains in the head and limbs went off, and the ulcerations in the neck assumed a healing appearance ; her general health, also, improved rapidly. But at this period, her progress towards a cure stopped ; and though we persisted in the acid some time, it did not recommence. It was therefore, at the end of seven weeks, abandoned, and recourse had again to mercury, but in small doses, gradually increasing them, however, till ptyalism commenced. At first, there were indications of benefit from this new course of mercury ; but these speedily failed ; and her general health suffering severely, we were once more compelled to abandon it ; the ulcerations in the neck having, during its use, evidently spread and become more morbid. The nitric acid was had recourse to, as before. During the second course of the acid, her health again improved, and the venereal symptoms again appeared to give way. But, after a few weeks, these favourable indications failed us ; we abandoned the acid, and resorted to mercury once more.—It would be tedious



tedious to particularize farther. With the mercury, *sarsaparilla*, *mezeon*, and opium, were successively combined; but in vain. Her health giving way, the sores enlarged, and once more we returned to the acid. At length we combined the acid with mercury, in what are called alterant doses, and with evident benefit. At the end of eight months, however, the ulcerations continued, though much diminished. Despairing of any farther benefit from these combined powers, we abandoned them altogether, and after a proper interval, put the patient on a course of the mineral solution of *De Valengin*, (from which, in obstinate venereal affections, I had before seen extraordinary effects) and during this course the ulcerations speedily healed, and the cure of the patient became complete, the treatment having occupied a space of upwards of ten months. In obstinate cases of this kind, it is usual to suppose, that some scrofulous, or other taint, has combined with the venereal virus, and this may have been the fact in the present instance; the result, will however, afford encouragement in similar situations.

The encouragement arising from the three cases just mentioned, led me to try the nitric acid in a variety of other cases. In some of these, my success has apparently been complete; in others, there has been evident benefit without a perfect cure,

cure; and in others, it has seemed to fail entirely. It is not a little curious, that in some of the cases in which I have succeeded, the symptoms were what are called secondary, and the disease in its most rooted and obstinate state. One of my patients, whose name is Elkins, has drawn out his own case, the particulars of which are shortly these:—About four years ago he was affected by lues, with the usual symptoms, for which he underwent a course of mercury, and was supposed cured. In about nine months afterwards, however, the disease appeared in his throat, and in obstinate pains in his head, &c. He was again salivated, and with similar good effects. Twelve months after this, having been for a considerable time subject to what was supposed to be rheumatism, the disease appeared again, and resisted the long-continued and repeated use of mercury, under a practitioner here, of the first eminence. He was at length obliged to abandon it, having been reduced to a state of extreme weakness. About three months after this, he was admitted a patient into our hospital, and under my care. At this time he had a thickening of the pericranium in two different places, the most severe pains, especially in the night, in the bones of his head, arms, and legs, and a large increasing node on the right tibia. All his symptoms were at this time increasing; and having taken so much mercury in vain, he



he was in a state of extreme despondence and depression.

We prescribed the nitric acid, and his sufferings abated from the third day ; and being continued, the thickening of the pericranium and the node of the tibia entirely disappeared, with all his other symptoms. He took the nitric acid, in all, to the quantity of eight ounces in eight gallons of water, which he drank in sixty days.

Elkins has been nearly a year discharged, and has never had any return of his complaints. This case has made some noise, and I have endeavoured to attract the attention of several of my brethren to it, as decisive of the influence of the acid in this destructive disease.

On the other hand, there are a still more considerable number of cases, in which the acid has entirely failed me, or produced only partial benefit ; and at present, though I always order it internally, with mercurial inunctions on the skin, I do not trust the cure to it alone *in the first instance*. Combined with mercury in this way, the constitution seems to support the action of the metal better, and the cure to be accomplished more safely and more speedily. In several instances where, after a course of the nitric acid, it has  
been



been thought advisable to have recourse to mercury, a very small quantity of the ointment, in one case two drachms only, has produced complete ptyalism. This has occurred so frequently, that I do not think the conjunction accidental.

The nitric acid has never been pushed by me to the extent, in which it has been used by others; in many of the cases, in which it has apparently failed, I cannot pretend to say, that it would not have succeeded, if pushed to a greater length; but I have not thought it proper to carry it to an extent injurious to the stomach or bowels, while the salutary effects of mercurial inunction remained untried. In the quantities in which I have prescribed it, it has been uniformly salutary to the constitution, in this respect its action contrasting very happily with that of mercury. In the cases in which it has apparently succeeded (in my hands) in the cure of lues, I have not known a relapse to take place; but as the patients have been chiefly seafaring persons, it is not in my power to trace their history subsequent to our parting. In one case of the primary disease, in the hospital of the 20th regiment, the assistant surgeon, who thought it had effected a complete cure, found the disease break out in the throat, at the distance of four months, and finally removed it by mercury.

I have

I have experience of the effects of the nitric acid in complaints of the stomach, hypochondriasis, asthma, and some other diseases, as well as in hepatitis; but as your inquiries are directed to its agency in a single disease—lues—I forbear to enter on other points.

But you will ask whether I can mark, by any particular effects, the circumstances attending its salutary operation in lues?—I think I can. In the cases in which it succeeded, it evidently irritated the system in the following respects:

1. The gums were always affected with tenderness and redness, and the action of the salivary glands increased. This affection may indeed be considered as depending on its local action; for it took place in one case, where, for the sake of the experiment, the acid was taken into the mouth, but not swallowed. This state of the gums, &c. was not attended by foetor, as during the action of mercury, neither did it increase as the acid was continued, but in a little while disappeared. This affection of the gums and salivary glands did not always appear in the cases where the acid failed.

2. In every case in which it succeeded or operated beneficially, there was a considerable increase  
of



of urine, and this discharge became turbid ; sometimes of a whitish, and sometimes of a brownish hue ; it amounted to about eight pounds in the twenty-four hours. But the discharge of urine did not go on increasing under the continued use of the acid ; on the contrary, it ceased like the increased discharge of saliva. The affection of the kidneys seemed to precede the affection of the salivary glands ; but both the one and the other occurred by the fifth day at latest.

3. The patients had their appetites improved, and felt a greater alacrity of spirits.

4. In all of them the pulse was rendered more frequent, and the animal heat towards evening increased from one to two degrees, which in the night was generally carried off by more or less of sensible perspiration.

I think that these symptoms have not appeared at all, or not in combination, where the acid has seemed to be inert.

But I wish to speak with the diffidence becoming my imperfect experience ; and I would not willingly have spoken at all in this stage of the inquiry, had not there appeared a danger of the attention of medical men being wholly withdrawn



drawn from the investigation of a subject, which, though difficult, seems to me not only curious in itself, but likely to produce important consequences to the healing art. To assist in preventing this, I am willing to offer a testimony, which is certainly imperfect, and which in some respects may ultimately be found erroneous.

You are welcome to make what use of it you please.

I am, dear Sir,

Yours with much esteem,

J. CURRIE.

THE END.

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*J. M'Creery, Printer, Houghton-Street, Liverpool.*









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